DOCUMENT RESUME

ED 232 283 EA 015 845

TITLE	Inequalities in Educational Development: Papers Presented at an IIEP Seminar.
INSTITUTION	United Nations Educational, Scientific, and Cultural Organization, Paris (France). International Inst. for Educational Planning.
SPONS AGENCY	Swedish International Development Authority (SIDA).
PUB DATE	82
NOTE	279p.; For a related document, see ED 231 094. Financial support also provided by the Belgian government.
AVAILABLE FROM	Publications, International Institute for Educational Planning, 7-9 rue Eugene-Delacroix, 75016 Paris, France (Order No. A.103; 15 francs; also available in French).
PUB TYPE	Collected Works - Conference Proceedings (021) -- Books (010) -- Viewpoints (120)
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	Access to Education; *Developing Nations; Disadvantaged; *Educational Development; *Educational Equity (Finance); *Educational Opportunities; Elementary Secondary Education; *Equal Education; Equal Opportunities (Jobs); Higher Education; Poverty; Salary Wage Differentials; School Role; Seminars; Sex Differences; Sex Discrimination; *Social Status
IDENTIFIERS	Ethiopia; Guatemala; Indonesia (Java); Iran; Tanzania; Thailand; Upper Volta; Yemen

ABSTRACT

Based on the realization that the rapid worldwide growth of educational systems over the last two decades has not produced the expected eradication of social inequality, an international seminar was held for educational policy-makers, planners from developing countries, research workers in the area, and representatives of aid agencies from 33 countries. Three principal topics were examined: the diagnosis of inequalities in education and possible future objectives in the area; strategies for the reduction of inequalities; and education and inequalities in the labor market. The perspective of the developing countries was emphasized throughout. This volume contains 20 papers presented at the conference. Educational inequality, educational expansion, and employment inequalities are examined in several areas: Yemen, Upper Volta, People's Republic of Benin, Ethiopia, Zanzibar, East Java, Cuba, Guatemala, Thailand, Vietnam, and Iran. Other papers examine the question from a more global or general perspective. This volume is a companion to another publication containing a report of the seminar, a synthesis of the discussions that took place, and a selection of five papers presented. (JM)

Papers presented at an IIEP Seminar

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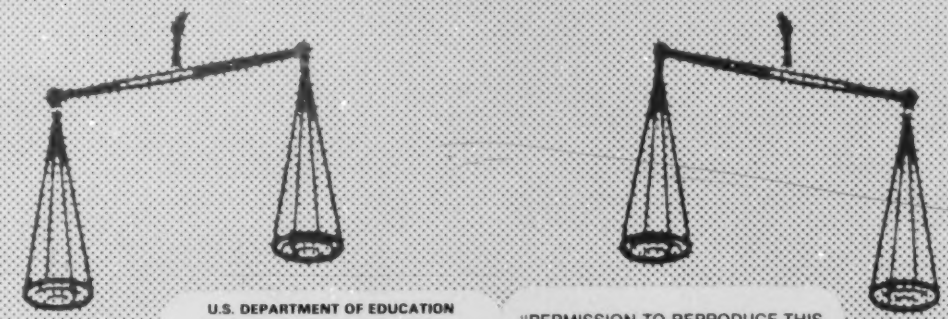

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Inequalities in educational development

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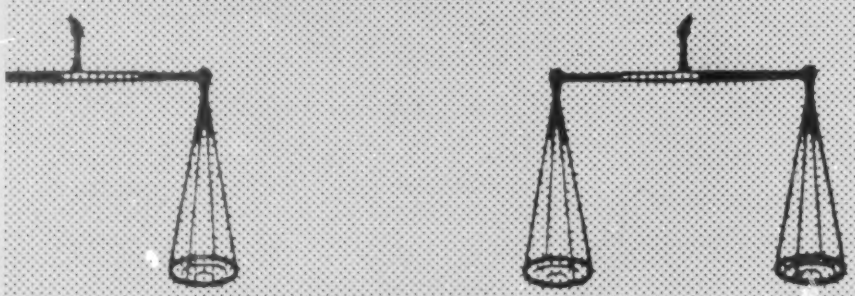

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Inequalities in educational development

Papers presented at an IIEP Seminar

Paris 1982

Unesco: International Institute for Educational Planning

Composition and make-up by IIEP
7-9 rue Eugène-Delacroix, 75016 Paris
May 1982

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Preface

The exceptionally rapid growth of educational systems over the last two decades would, it was thought, encourage mobility, and thus contribute to the democratisation of society. But the experience in most countries has not confirmed this view. Despite an unprecedented increase in overall enrolments, inequalities - often very wide - still exist between the sexes, between socio-professional categories, between regions, between urban and rural areas; sometimes, in fact, there is a noticeable increase, whether one takes as indicators access to education, achievement level, or the transition from one educational level to the next. These inequalities in education are followed by inequalities in the labour market; and these in their turn produce and reinforce inequalities between individuals and social groups in income, in living standards, and in power.

This is the situation which those concerned with education policy in an increasing number of Third-World countries are trying to change, by making "equality of opportunity" a major target in their educational development plans. But this goal is made more difficult to attain by the fact that the proportion of public expenditure devoted to the educational sector in many countries seems to have reached a ceiling, which foreshadows a progressive slowing-down of the growth of financial resources. Reliance can no longer be placed, therefore, on the continuing expansion of the educational system for the gradual disappearance of inequalities. It is therefore necessary to make profound changes in the orders of priority and to find new strategies of organisation and planning which will contribute more efficiently than in the past to the reduction of inequalities.

As a contribution to the debate on these questions, the International Institute for Educational Planning organised a seminar on inequalities in education and in employment. Three principal topics were examined: the diagnosis of inequalities in education and possible future objectives; strategies for the reduction of inequalities; and education and inequalities in the labour market.

The interest of the seminar lies in the fact that it reflected the views of educational policy-makers and planners from various developing countries, research workers in the field of inequalities in education, and representatives of bilateral and multilateral aid agencies. It thus facilitated a fruitful dialogue between experts with different points of view but with a common concern - the aim of genuine democratisation. A report of the seminar, with a synthesis of the discussions that took place and a selection from the papers presented, has been published under the title Planning education for reducing inequalities: an IIEP seminar (Paris, Unesco: IIEP, 1981). The present volume contains twenty further papers: the authors are responsible for the choice and presentation of the facts contained therein and for the opinions expressed, which are not necessarily those of the Institute and do not engage the responsibility of Unesco. The information regarding the authors refers to the positions they occupied at the time of the seminar.

This seminar and its conclusions provided valuable guidelines for the Institute's research programme, which is now considering more varied aspects of the inequalities problem. The principal theme of the Medium-Term Plan adopted for 1979-83 is the study of educational reforms, in order to adapt educational planning and administration methods to the new tasks involved in the preparation and implementation of these reforms. Among these reforms, particular attention is given to those aimed at reducing inequalities in education: regional disparities and also inequalities

affecting rural areas, women, disadvantaged groups, minorities. This programme is being carried out mainly by co-operation with national research teams and institutions.

We acknowledge with gratitude the financial support afforded by the Belgian government and the Swedish International Development Authority (SIDA) for the preparation and organisation of this seminar, and for the publication of its results.

Michel Debeauvais
Director, IIEP

Paris, February 1982

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The experience of the People's Democratic Republic of Yemen

S. A. K. Al Noban
Minister of Education, People's Democratic Republic of Yemen

It seems to me that this topic is peculiar in the sense that no official can admit that there is this phenomenon practised against any citizen; peculiar because every country has declared either explicitly or implicitly that education, and especially basic education, is a right for every citizen.

The International Commission on the Development of Education, appointed by the General Conference of Unesco under the Chairmanship of Mr. Edgar Faure, has come to the conclusion that:

> "... any attempt to slow down educational development be excluded from educational policies and strategies on cultural, political and economic grounds. The aim of education is to enable man to be himself, to become himself. And the aim of education in relation to employment and economic progress should be not so much to prepare young people for a specific, life-time vocation, as to 'optimise' the professions and afford a permanent stimulus to the desire to learn and to train one-self."

If this is the trend which the International Commission for Education has deduced, how can one justify the theme of the seminar?

Decision-makers, though they formulate the objectives of education, and participate within the overall national developmental planning, face some constraints in maintaining an optimum investment to meet the educational plan. Developing countries are the victims of colonial policies which exploited them at one time and left behind a heavy heritage of ignorance, disease and poverty. When these countries usurped their independence, their aims were great and the expectations of the masses were even greater. On the other hand, development in science and technology and investments in research and development to transfer technology which is suitable for developing countries are beyond the potentialities of most of these countries. This is the dilemma which is to confront the Third World.

Sometimes one feels that one faces a dilemma whose ends do not meet. But the problem may be scrutinized by answering the following:

1. Are developing countries aware whether the new technology in the industrialized countries is suitable or not for their future development? Should there be any modification for that technology? Are developing countries aware of the effects of the transfer of the new technology - social, political and cultural?

Some quotations from the report prepared by a team of experts for the Arab Ministers concerned with science, whose meeting in Jordan in October 1978 was organized by ECWA, may pass on my message:

> "All Arab countries depend to a great extent or exclusively on industrial nations for their supplies of technical know-how, patents, technical management and technical invention.

The current practices and systems for these supplies leave the industrialised world still in a powerful and dominant position to influence technology transfer, the channels of which are largely controlled by them.

In general 90 per cent or more of all major development projects are designed and executed by foreign contractors from the SUMED pipelines in Egypt, the Aswan High Dam, the Greater Mussayab Project, dams in Iraq or Algeria, the Haradh Agricultural Schemes in Saudi Arabia, the new Saudi Arabian Eastern industrial complex, to airports, airlines, new schools and housing projects.

Some of the Projects in the Arab World are among the largest in the World, yet they generate little employment for Arab manpower. Arab States seek to import "advanced technology" yet many of these plants are operated far below their "design capacity".

2. Adaptability of the educational structures in the developing countries may be another problem to tackle. Many of these countries have inherited educational structures which are irrelevant; systems which colonial philosophies based on sharp selective measures and oriented towards white-collar jobs and systems which create a longing to follow up academic studies and scorn vocational training. No genuine desire to expand in technical, agricultural and vocational training.

If this is not the case, how can one justify the problem faced above despite the fact that most Arab countries have long traditions in educational expansion? That tradition is very conservative and does not strike deep into the social, economic or cultural objectives.

3. More important than this is the social philosophy of the regime. How does it look at education?

Taking the above background note as a point of departure, Democratic Yemen is reorganizing the educational systems to solve some of these problems:

The admended constitution of the People's Democratic Republic of Yemen stresses three issues related to this topic:

(a) Article 36 deals with work: "to get a job is a right of every citizen in accordance with his qualifications - the state guarantees this through the development of the economy and the increase of the National Income and the continued development of the productive forces, increase of the efficiency of the works and the expansion of vocational training".

(b) Article 11 deals with the development of the economy: "the state develops the National Economy in accordance with the laws pertaining to scientific socialism. The state encourages the productive sectors of the economy to meet the needs of the people and guarantee the equal distribution of the social wealth. To implement this the state has to prepare over-all plans for the development of the Economy and the National Investment ...".

(c) Article 39 deals with the right to education: "All citizens have the same right to education ... Education is free, and the state pays more attention to technical and vocational education and cares for those who have been deprived of it because of hard social conditions. The state tackles the problem of illiteracy and encourages those who pass examinations to pursue further education."

The three constitutional articles above give the framework for the Ministries concerned with the topic of the seminar, i.e. equal opportunities of education all over the Republic, right to work, etc.

What is actually happening in P.D.R.Y.? The answer to this is an answer to the theme of the seminar:

I. EQUALITY WITHIN THE EDUCATIONAL SYSTEM

We in P.D.R.Yfeel that we are heading towards giving equal educational opportunities to all children, especially education at the first level (Grades 1-6, and subsequently to Grades 1-8). During the ten years since Independence, big strides have been accomplished to reach that goal. The appraisal mission of the World Bank (IDA) has commented on that expansion:

"The government's top priority - the quantitative expansion and equalization of educational opportunity will be difficult to achieve in a country in which traditionally, women have never been accorded equality, when population is widely dispersed and when educational resources - buildings, equipment and teachers, are limited. The goal of universal primary education cannot be achieved by 1978/79 as only 30 per cent of the girls in this age group are currently enrolled. Total primary enrolments, including over-age boys, would be 241,000 by 1978/79 and 296,000 by 1984/85, representing 91 per cent and 94 per cent of the group. Using these primary enrolment projections, the government progression rates of 80 per cent plus 70 per cent proposed for preparatory and secondary growth would provide enrolments of 57,000 and 25,000 respectively by 1978/79 which would be equivalent to 47 per cent and 23 per cent of the relevant age groups. By 1984/85 enrolments would reach 74,000 (66 per cent) and 52,000 (40 per cent) respectively, placing PDRY in the upper quartile among developing countries for net secondary enrolment ratios."

The actual enrolment figures for the academic year 1977/78 for primary, preparatory and secondary education are 212,846, 51,500 and 14,543 respectively. We are confident that:

- We will achieve the enrolment figures cited in the paragraph quoted above by 1978/79 for primary and preparatory. As for the secondary figures, we think that the forecasting is not accurate.
- Universal primary education is a target which we are aiming at within the next ten years 1979/88, i.e. the second and third Five-Year Plans. Discussions were initiated when preparing the Second Five-Year Plan (1979-83) to universalize primary education. But for some technical difficulties, especially the preparation of teachers, and buildings, it was thought reasonable to achieve it within ten years. Another main reason for this prolongation is the fact that primary education will be for a duration of eight years, in accordance with the recommendations of the first Education Congress held in September 1975.
- The problem of girls' education is on its way to being solved. By law, women have been given equal rights with men. Girls' education is expanding and in rural Governorates we have achieved good successes in co-education. The remarks which the Bank made are no longer very accurate. The disappearance of old social traditions and the reluctance of parents to enrol their daughters in education can be disproved from the following figures of enrolments:

	1969			1978		
Governorate	Population 7-12 years	Participation in primary education	%	Population 7-12 years	Participation in primary education	%
First	20 128	8 641	42.9	26 914	20 556	84.9
Second	13 724	1 525	11.1	18 482	11 177	60.5
Third	19 346	1 575	8.1	25 720	18 369	71.4
Fourth*	10 887	380	3.5	14 476	3 298	22.8
Fifth	29 073	3 462	11.9	38 697	19 602	50.7
Sixth	5 369	-	-	7 080	1 248	36.7

* Problems of this governorate: low percentage is due to insistence of parents to have female teachers. They have not yet accepted co-education fully.
The participation includes late enrolments. This will lower the percentage of the participation of age group 7-12.

From the above, one can deduce that PDRY is heading towards giving equal opportunities to all children all over the Republic and hence the sub-topics of regional disparity and sub-professional groups no longer apply.

We in Democratic Yemen believe that the consitutional right of every child to obtain education has to be qualified. There are a lot of problems which may face parents, especially poor parents. The problem of distribution of qualified teachers to the difficult areas in some Governorates and the

availability of standardized educational material in every school anywhere in the Republic should also be counted when dealing with equality of educational opportunities. We are aware of these problems and are doing our best to solve them:

II. PROBLEMS OF THE PARENTS

The financial problems of the parents may be a handicap to the education of the child, especially when we think of parents with more than two or three children. The government has taken measures to help parents:

- Education is free and children are given their textbooks and all facilities needed.
- Free transport is given to all children: home - school - home.
- Boarding schools are open for the children of the poor and for those who do not get the level of education in their locality or who cannot reach it by public transport. About 20 per cent of the annual budget of the Ministry is allocated for this purpose.
- Clothing allowances are paid to poor children, especially the children of nomads. Other children can get their clothes from Government retail shops with a reduction of nearly 30 per cent of cost price. The government subsidises this item.
- General library books for children are subsidised by the government by 50 per cent of the cost price.

These are the basic conditions behind the principle of democratization of education. The Socialist Party of Yemen and the government are convinced that without assisting the parents, educational democratization is meaningless.

III. QUALIFIED TEACHERS AND EQUIPMENT

This is one of the areas which usually make a difference in the quality of education given to children: if no justice is observed, especially for the remote areas, inequality of education is definite. From the experience of P. D. R. Y., the remote areas have been given low-category teachers because qualified teachers are usually reluctant to sacrifice town life. The result of this has been low achievement of the students, and subsequently we were unable to go ahead with achieving the target of the First Development Plan in Education (1971-73).

We had to call the Teachers Union in to help in solving the problem and the suggestion that was acceptable to all was to have a Central Committee for Transfer of Teachers which observes:

- fair distribution of qualified teachers;
- recommended duration of the transfer for every teacher, after which he can return to teach in his home village;
- looks into exceptional cases of illness or family circumstances.

But as expansion continued, it was realised that the above measure was insufficient to guarantee equal education. We then had to think of establishing regional teacher-training institutions. In every Governorate there is one Institute for the preparation of teachers for classes 1-4, another Institute for classes 5-8. Then for upper secondary (classes 9-12) we have one Faculty of Education. Through the two measures we hope to persuade students from the Governorates to participate in the development of education in their regions.

The problem of science equipment and other audio-visual aids cannot be ignored: its effect on linking theory and practice is important. We are doing our best to equip every school with the same science facilities that serve the syllabus.

The forthcoming Development Plan (1979-83) is being prepared at regional level, i. e. Directorates of Education in the Governorates have drawn up separate plans to take into account the real problems which they face. Then this is discussed at the central level and hence the Education Plan is submitted to the Ministry of Planning for discussion.

IV. POLYTECHNICAL EDUCATION

One of the goals of education in P. D. R. Y. (Law of 26th February, 1972) is to make manual work favourable to every child in the school. He has to like work, practise it and have good feelings towards the labour class. We should through this practice wipe out the colonial concept that manual work is scorned and is the job of the lower class in society.

To achieve this we have introduced in the curriculum a subject which we called "polytechnic". This subject starts in Form 5 and ends at Form 12. In urban areas technical subjects are taught - carpentry, metal work, electricity and electromechanics. In the rural areas agricultural subjects are taught.

Another value which we hope to achieve from this is that students' orientation may be diagnosed. Students may be advised after basic education to follow a vocational or technical course rather than academic secondary. On the other hand, this training may be very helpful to those students who leave school and join the labour market voluntarily.

V. FUTURE PLANNING OF EDUCATION

The trend which is currently discussed now in the Ministry and which will have an effect on the future development plans is to give compulsory basic education for eight years. After that, stress is to be placed on vocational schooling (Forms 9-10) which will be to produce skilled workers of the future. This is a new approach in our educational system which started as an experiment two years ago. The success was clear and the graduates were quickly absorbed into the labour market. An increase of such vocational schools is foreseen in the new plan to cover technical, agricultural and tertiary. We hope that the graduates of these schools may follow up further studies in their vocations.

Secondary-education enrolment will be limited to serve high manpower planning, i. e. technician level and university graduates.

Technician-level enrolment will be: (i) from graduates of the 8th class and for a duration of five years; (ii) from secondary-school graduates for a duration of two years. This is practised in some specializations only. University enrolment will be fully geared to the Manpower Plan which is currently under preparation.

Inequalities between linguistic groups:

costs and educational services for minority language groups

Stacy Churchill
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Like most other countries in the world, Canada has significant minority language groups within its borders. French-speaking Canadians are the most known outside the country, but there are significant other groups - native American Indians and Inuit (Eskimos) as well as large numbers of persons belonging to other ethnic groups who have immigrated from other countries and who retain their native languages to a significant extent. In the city of Toronto, for example, it is estimated that a majority of the students in the public school system come from homes where the domestic language is not English. By and large, for historical reasons, Canadian education has responded primarily to the language needs of the two main European founding peoples - the English-speaking and the French-speaking. In some parts of the country, a full range of educational services is available to both groups; in other parts only one group, invariably the English-speaking, is recognized; in others a mixed range of services is available.

The purpose of this paper is to present an overview of some of the issues encountered in providing education in more than one language; on the basis of research carried out by the author in Canada[1/], an attempt will be made to identify significant problems that are of relevance to other countries and, particularly, to those intending to undertake the development of educational systems serving more than one language constituency. Since historical and political factors play a major rôle in dealing with the language issue in all countries, findings from the Canadian experience are not likely to be applicable directly elsewhere ... with one exception. The exception is a basic premise arising out of study of both Canada and other countries: the fact that educational planners try to ignore the language issue will not make it go away. Deliberate attempts to eradicate languages through use of the educational system and other public means (short of genocide) have seldom succeeded in any country. Some countries may still be in a position to try to ignore the language problem for an indefinite future; but the majority cannot, except at their peril. I will return to this point later. Meanwhile, I take it for granted that even though the topic of education in more than one language is not a major theme of this conference on inequality, it is a theme that will play an increasingly important rôle in educational planning in the coming decades.

I. BACKGROUND: TERMINOLOGY OF ORGANIZATIONAL PATTERNS

Linguists and others who discuss problems of language have created a language problem of their own - how to communicate with the public about their topic. By and large, the general public of most countries (and I include persons with high levels of educational attainments) tends to have a limited knowledge of topics such as bilingualism and multilingualism. The popular press and even academic writings are filled with imprecisions which are readily understood (sometimes) in the local context but cannot be transferred elsewhere. The term "bilingual school" must have at least three or four major meanings inside Canada, depending upon who uses it. In fact, some major educational policy decisions in Canada have been put in motion as a direct result of the fact that the

1/ Churchill, Rideout, Gill and Lamerand, 1978; also current research under contract to the Secretary of State, Ottawa.

participants in making the decisions were using the same words to talk about different realities; they achieved consensus on the terminology and became publicly committed to the concepts being verbalized before they realized that they actually disagreed [1].

There is no utility in our entering into an encyclopedic discussion of all the different types of terminology relevant to the topic. Whatever the terms used, the realities being discussed are relatively simple. I shall adopt a particular vocabulary, but it suffices for readers to know only the underlying concepts in order to understand.

Let us begin with the question of bilingualism and bilinguals. A person is bilingual if he or she can speak or otherwise use more than one language; this is more or less complete in different persons, so that one can refer to degrees of bilingualism in people. A public service or an institution such as a school can also be 'bilingual'. There are two types of bilingualism in public services. One form involves personal bilingualism of the person employed in the service, e.g. in a post office; if a client comes to the window, the employee is expected to respond in either of two languages. In many environments it is difficult to guarantee personal bilingualism of employees, so that most bilingual countries resort to the concept of 'institutional bilingualism': the client has the right to be served in his or her language but may have to go to a special window where an appropriately skilled employee is present. Some employees speak one language, some another.

Let me now show how, in practice, these terms apply to an educational situation in a typical Canadian province other than Quebec (which will not be dealt with here). In all these provinces the majority of the population speaks English (though the Francophones sometimes form a majority in different localities). Some of these persons learned English as a mother tongue, others as a second language; the latter may often conserve their mother tongue in the home and use English outside; this has been going on for generations with some groups, such as the Ukrainians in the western provinces. For the purposes of public policy, these are all considered to be English speaking. Public policy also recognizes a second group, those who speak French as a mother tongue. Since these persons all live in provinces where the majority is English-speaking, these Francophones are almost invariably bilingual (particularly the younger ones). By contrast, the majority of Anglophones do not speak French.

In all the provinces, a full English-language educational system exists - primary, secondary and post-secondary [2]. The organization of services for the minority is complex, varying from place to place. However, within this complexity, there are only a very few organizational modes: First, Francophones may be able to attend schools which function entirely in their mother tongue, except for the teaching of English as a second language. Where numbers do not permit the constitution of a separate school, separate classes function in French within a larger school; Anglophones attend the same school and go to classes in English; except in a few places, outside the classroom, the dominant language is English when Anglophones and Francophones meet or play together. At the secondary school level and in university, a final mode of organization is present when students have programmes based upon the selection of 'credits'. Some Francophones attend schools and university faculties where all courses, or almost all, are given in French. Others attend institutions where they may pursue a programme including some courses taught in French and others in English.

For all the modes, the underlying organizational pattern is institutional bilingualism. Teachers always teach in only one language. A given course is offered either in French or English. Three basic types of school prevail: English schools, French schools and 'mixed' schools, where classes function in one of two languages, almost never in both. The exception to the rule of one language per classroom is the language classroom per se, where English is taught to Francophones and French to Anglophones; in these circumstances, the classroom is filled with speakers of one language who are learning the other. Thus, a second underlying principle of institutional bilingualism for education is that the students are grouped according to mother tongue. As far as possible, the

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[1] Haché, 1976

[2] For a brief overview of educational structures, see OECD 1976.

grouping begins at the classroom level, at least; if possible, one creates entirely separate schools in order to provide a different language ambiance. The only rare exceptions to these rules occur in some rural communities (particularly in Manitoba) where there are a few Anglophones mixed in with Francophones in a French-speaking class.

II. GOALS OF EDUCATION FOR MINORITY LANGUAGE GROUPS

Behind these neutral descriptions of school organization, one finds a dynamic political and social reality. Approximately one million francophones live in provinces outside Quebec. (see Table 1)

Table 1* Population of French origin by province (1971)

Province	Population of French origin (1971)	As % of total population (1971)
Newfoundland	15 410	3.0
Prince-Edward Island	15 325	13.7
Nova Scotia	80 220	10.2
New Brunswick	235 025	37.0
Ontario	737 360	9.6
Manitoba	86 510	8.8
Saskatchewan	56 200	6.1
Alberta	94 665	5.8
British Columbia	96 550	4.4
TOTAL	1 417 265	6.6 (avg.)

*Cited from Les héritiers de Lord Durham 1977

They are concentrated primarily in New Brunswick, Manitoba and Ontario. Without exception, they have had to carry on an active political struggle to obtain the educational systems which they enjoy. It would be distorting reality to suggest that all English-speaking Canadians support the existence of French language educational opportunities. In Ontario, for example, for the better part of half a century (from 1931 down to the 1960s) French language schools existed only on tolerance without official status for the language of instruction; indeed, for a period, it was deliberate public policy to attempt to force the use of English as early as possible and to eliminate the use of French in later years. The consequence of this and similar policies elsewhere has contributed to a close identification between the issue of defending French language schools and the goal of maintaining the French language group as a distinct cultural component of our society. [1/]

The Francophones outside Quebec are a minority group in the true psychological sense - conscious of being menaced by a majority in terms of its rights, potentially in terms of its very existence as a group. In this sense, they share many of the problems of other ethnic and linguistic minorities in industrialized countries; fortunately they are spared from open, systematic discrimination of any sort, other than in the fact that their language has little official status outside the educational system or federal government offices. New Brunswick is the only province (outside Quebec) to have made French a second official language. [2/]

[1/] For an historical survey of educational issues in all the provinces, see Report of the Royal Commission on Bilingualism and Biculturalism. Book II Education.

[2/] Les héritiers de Lord Durham 1977 pp. 51-55.

Thus, if one looks at Canadian experience to take into account the historical evolution and the differences across the range of its geography, one finds an almost complete range of possible options for dealing with minority language groups. At one extreme is the policy of attempting to eliminate the minority group through the use of the majority language in the school system, the assimilationist approach; at the other, one finds the search for a French-English duality symbolized by the recognition of two official languages and the provision of full educational services to the minority group in their language. These differences reflect the main approaches to the minority language problem found in European-style industrialized nations:

(a) Assimilationist: suppression of the minority language in public institutions such as schools and the attempt to replace it systematically by the majority (dominant) language.

(b) Transition-melting pot : the use of the minority language in schools as a stepping stone for entry into the greater/'broader' culture (this can be assimilationist but can also be reconciled with a de facto policy of language maintenance).

(c) Language maintenance-folkloric: the attempt to preserve the use of a language in a sort of artificial environment with little contact with a dynamic culture and with no expectation that the speakers of the language will use it for purposes outside the home and a restricted group of acquaintances.

(d) Language maintenance-cultural preservation: the use of a minority language in education as a complement to the preservation of a viable culture outside the school.

To this list, one might add a fifth, primarily used in nations born out of the disintegration of the great European colonial empires:

(e) Language of convenience: the choice of one language as a vehicle for formal education and communication within a nation having numerous cultures and languages; this may be transitional (post-colonial status) or of indefinite permanence, in which case it may tend towards the assimilationist model.

The assimilationist policy is, fortunately, a thing of the past in Canada for Francophones; however it remains the policy for native American Indians. The transition-melting pot approach is primarily applied to immigrants from outside Canada, though our policies of so-called 'multiculturalism' or 'heritage languages' have been created for the larger immigrant group. They are based primarily upon the language maintenance-folkloric model, at least as far as official aims of policy are concerned; many of the affected ethnic groups use them as their own way of reaching towards the language maintenance-cultural preservation model. However, this latter model is reserved for the Francophone minorities in official policy. As for the use of a language of convenience, there is no Canadian equivalent of the experience of African and Asian countries which have chosen one or more national languages or a European language as the basis for creating an educational system.

The clarity of these models is only the product of abstraction from reality. In any given situation, the distinctions may be hard to make. Or, to be more precise, in any given Canadian locality where minority language education exists, it is probably possible to find among the public the full range of perceptions as to what the educational system is intended to achieve and what it actually achieves. Many Anglophone Canadians accept, for example, that minority French language education is a sort of necessary concession to political forces but assume that its underlying aim is the transition into the greater English-language society of North America. I am certain that the same range of opinions is likely to be found in other countries facing this type of situation.

For the purposes of this conference, it is important to note that each of the models is likely to be based upon different assumptions about the nature of educational inequality related to language. To schematize briefly, we might distinguish them as follows: The assimilationist model is based upon the assumption that the minority language is inferior or less useful in terms of some goal. For many nations today this goal is often national unity and therefore more political than pedagogical. Until relatively recently, however, some national policies were based upon the assumption that certain languages were inherently 'inferior' and not suited for the communication of high-level, 'civilized'

thought, including most academic subjects of study (except religion). In the eighteenth and nineteenth centuries, several peoples of Eastern Europe, today recognized as major nations with their own vigorous cultures, were subjected to a cultural colonization based upon this assumption that their languages were inferior. Such assumptions have been rigourously challenged by linguists and, today, we find that many nations in Africa and elsewhere are beginning the development of native languages, fostering the evolution of their vocabulary and syntax towards the expression of concepts related to industrial urbanized life.

The transition-melting pot and the language maintenance-folkloric models are both based upon the assumption that the native language of the minority group may have some permanent value 'elsewhere' but not in the context where they are applied. The language is subject to conservation only as long as it happens to be useful either to speed up transition to the dominant society or to keep up a certain folkloric tradition. The transition-melting pot concept has been most strongly developed in recent years in the United States, where the introduction of bilingual programmes for Hispanophones and, to a very minor extent, Francophones, has been based in part upon an examination of school achievement results indicating that students from these groups have important educational difficulties if they are forced to study in English. Almost all the U.S. programmes were originally 'sold' to the general public as being intended to provide an easy transition into English, thereby improving scholastic achievement in an ultimately English-language educational system[1/]. The political pressure of large numbers of Hispanophones has tended to erode this conception in practice, moving the model in some localities closer to that of full cultural conservation. The last model, language maintenance-cultural conservation, is based upon a postulate of ultimate equality of two groups co-existing in society for an indefinite period; however, almost inevitably, wherever it is applied, except some of the older European bilingual or multilingual states, it is in the context of a disadvantaged minority group. The minority group is judged to be inherently equal in terms of rights but is found to be unequal in terms of treatment by the educational system, receiving a lower level of services and attaining a lower level of achievement. It usually carries with it the explicit goal of making the two groups equal in terms of benefits derived from education.

The Canadian experience in the development of minority language education can provide insights into four areas of concern related to the treatment of educational inequality between language groups:

- the legal status of language rights in education;
- allocation of resources to minority language education;
- level of services offered to minority language groups;
- differential achievement.

For each of these topics, I shall attempt primarily to sketch the major dimensions of the inequality problem rather than to present a complete summary of relevant data.

III. LEGAL STATUS OF LANGUAGE RIGHTS IN EDUCATION

The existence of educational institutions operating in both English and French is due historically to parallel patterns of colonization in the New World. In the nineteenth century, as education began to emerge from the tutelage of religion to enter under that of the state, Canadian schools were divided along confessional lines. This meant in many areas that de facto Catholic schools were largely French-speaking and Protestant ones English-speaking. When the present Canadian confederation took shape in 1867, the British North America Act protected the existing religious rights of the French-speaking population, which included the right to have Catholic schools. The following half century saw the development of state-controlled education, in a movement which limited the further development of confessional schools in some provinces and in others resulted in their abolition. For provinces such as Ontario and Manitoba, this implied also a deliberate attempt by public authorities to eliminate French language education through regulations and laws. The bitter resistance of the Francophones to this, resulted in a regime of tolerance in which French education continued to exist

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[1/] Cf. von Maltitz 1975

at the elementary level even though it was not officially 'legal'. In New Brunswick, despite its much higher proportion of Francophones, the Acadian population only obtained language rights through a long and bitter struggle[1].

The present pattern of educational services is the result of a long historical evolution which was particularly rapid in the 1960s. Progress continues to be made today in the expansion of services to minority Francophones. The present status of educational rights constitutes a complex mosaic, varying from no status at all up to virtually the existence of a full parallel system of educational facilities. From this pattern, which we shall not try to summarize[2], we may extract a certain number of dimensions of educational rights which are important:

(a) Status of the minority language for purpose of instruction: This means essentially whether the minority language can be used in the classroom, and to what extent. In Canadian law this is usually established either by a legislative bill or a regulation issued by the appropriate minister. Where use is authorized, it is sometimes subject to certain conditions - in particular some upper limit on the amount of instruction given in French, e. g. until recently a maximum of 50 per cent of instruction in Alberta. Where the upper limit has been removed, the requirement that Francophones study English as a subject (without the reverse requirement for Anglophones) still leaves the language in an unequal status.

(b) Conditions requiring the provision of educational services and facilities: Some provinces have codified the exact conditions under which instruction should be offered in the minority language. This means in practice that the educational authorities are expected to set up minority-language classes when a sufficient number of parents demand it. In such cases, the decision to provide classes and schools is left to the discretion of local authorities (boards or divisions) and, since the majority of these are controlled in most provinces by Anglophones, the result is a somewhat tenuous 'right' which frequently can only be obtained in the political arena. In other provinces, the 'right' is dependent upon the discretion of the Minister of Education.

(c) Control of the administration and governance of education: The degree of control exercised by the minority language group over the educational apparatus is a significant factor in determining the practical application of the existing laws and regulations. Two levels should be distinguished: At the level of the provincial ministry or department of education, some provinces have created quasi-autonomous sub-structures, for administration of French-language schools (New Brunswick and Manitoba); others have organs of co-ordination (e. g. Ontario) and some have none at all. At the local level (school boards or divisions), in provinces such as Manitoba and Ontario control depends upon the population proportions in a given area, with the Francophones often, but not always, in the minority. New Brunswick, by contrast, now has mainly separate French and English school divisions, which means that Francophones control the administration of their own schools, including the crucial decisions about when classes and schools are to be provided.

(d) Means of arbitrating conflict: In some provinces, if there is a dispute at the local level as to the recognition of minority language rights, the minority is dependent upon intervention from the level of the ministry or department of education, something which is often difficult in the political context. (In New Brunswick, the unilingual local boards provide their own built-in protection in most areas). In Ontario a special public commission with powers of inquiry and recommendation, the Languages of Instruction Commission of Ontario, constitutes a very useful organ of arbitration which has fostered the extension of minority rights by institutionalizing the mediation process and taking it out of the arena of direct political confrontation.[3]

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[1] Report of the Royal Commission on Bilingualism and Biculturalism for details.

[2] A recent, if polemical, survey of this status is in Les héritiers de Lord Durham 1977, pp. 63-74

[3] Churchill 1976a.

The above list constitutes the basic items which determine the equality/inequality of languages for educational pruposes. There is a sort of progression from the question of the legal right to use the language at all in class, to the determination of conditions where the right should be applied and, finally, to the control of the organs which decide when the conditions have been met; in cases where conflict may exist, mediation devices are important to ensure that the normal democratic process does not allow a majority to fail to recognize the rights of a minority. The basis of educational equality is equality of rights.

IV. ALLOCATION OF RESOURCES TO MINORITY LANGUAGE EDUCATION

The allocation of resources to minority language education is like a coin with two faces. On the one hand, one can ask what types of resource allocation mechanisms are relevant for fostering equality of educational treatment for minorities. On the other hand, one can ask if having equal treatment for language minorities creates the need for additional resources above those required for a system operating in one language. In looking for an answer to these questions, one might begin by an analogy: the two faces are always joined tightly together in a back-to-back relationship, but their precise location depends upon where the coin is tossed. In financial terms, this means that education costs exactly what it is permitted to cost, no more and no less. The policies adopted for the subsidization of the education system determine what the costs are going to be.

The Canadian fiscal system is a three-tiered one: federal, provincial, local education authority (board or division): Each tier has its own independent sources of tax revenue and at the bottom two tiers each receive revenues from the tier above. Because education is solely a provincial responsibility under our constitution, subsidies to education from the federal government constitute exceptions to historical practice and occur only after negotiation and agreement between the provincial and federal governments with respect to common goals. Although such agreements operate on a large scale to share the costs of post-secondary education between provinces and the federal government, very few federal funds are used for the elementary and secondary system. An exception exists specifically in the area of bilingualism in education. Since 1970, the federal government pays to the provinces a subsidy which is intended to cover the 'extra-costs' of minority language education and of teaching a second language to the majority (i. e. French to Anglophones outside Quebec, English to Francophones inside Quebec). The sums involved are quite substantial for these programmes, more than $373 million between 1970 and 1976. (See Table 2).

Table 2. Federal government subsidies to the provinces, 1970-76.

Province	Teaching in the minority language (9%)	Teaching of a second language (5%)	Administrative costs (minority language) (1. 5%)	TOTAL
Newfoundland	47 547	1 154 484	45 837	1 247 868
Prince-Edward Island	319 306	344 928	218 411	882 645
Nova Scotia	2 120 201	2 305 404	641 328	5 066 933
New Brunswick	23 231 154	1 785 479	5 291 759	30 308 402
Ontario	64 212 251	24 717 989	16 606 119	105 536 359
Manitoba	2 520 854	2 539 468	1 596 987	6 657 219
Saskatchewan	312 156	2 259 172	647 408	3 218 736
Alberta	1 140 430	3 640 156	1 130 019	5 910 605
British Columbia	104 754	5 497 887	478 543	6 081 184
Quebec	140 673 771	41 279 763	26 881 345	208 834 879
Total	234 682 424	85 524 730	53 537 676	373 744 830

The payments are given to the provinces on the basis of a formula which reimburses each province for a percentage of its own average instructional costs. That is, each province's share is determined in part by its own willingness to spend on education. Per pupil, the richer provinces receive more money than the poorer ones, since their expenditures are higher. The percentages appear to have resulted from a rough estimate published by the report of the Royal Commission on Bilingualism and Biculturalism which studied these problems in the 1960s. [1] For minority language education, provinces are reimbursed for 9 per cent of their average cost based on the number of full-time pupils enrolled in minority languaged educational programmes; in addition they receive 1.5 per cent of their average cost for administration, based on the number of school-age minority language students in their province. For second language instruction, the figure was set at 5 per cent, prorated on the basis of the percentage of the day spent in second language instruction, e.g. ten students who spend one-tenth of the day studying French, are counted as one full-time equivalent student, for which a given province receives 5 per cent of the average cost of educating a student in the province.

The implications of such a system are obviously not that of equalizing the load of educational expenditures across richer or poorer provinces. Rather, the intent is obviously to provide incentives to provinces to foster minority language and second language education. On the other hand, the federal government has no control over how the funds are expended when they reach the provinces, so that the degree of incentive to spend additional funds on the programmes in question is dependent upon each province's own political determination.

At the provincial level, a variety of mechanisms come into play [2]. One province (Alberta) passes the funds on directly to school boards in accordance with the federal formula. Two others (Quebec and New Brunswick) put the funds into general revenue and provide no special payments to local educational authorities for the programmes in question; each of these provinces already possessed fully bilingual educational systems before the inception of the federal subsidies, so that their reticence to allocating additional sums is understandable. Other provinces use a system of further grants to local educational authorities designed to provide incentives for development of programmes in this area. It would appear from research underway currently that, at least in the two most significant cases (Ontario and Manitoba), the result of these provincial subsidies is to augment considerably the sums coming from the federal government prior to transfer to the local authorities.

The most crucial aspect of the whole process of providing incentives is what happens at the local education authority when decisions are made regarding the provision of services to the minority group. The monetary incentives are part of a total system which includes the legal and regulatory framework outlined above. Since a major concern of the elected representatives (trustees) who control the authorities is the level of local taxation, any assistance from the provincial government to reduce the cost of minority language education to the local taxpayers tends to facilitate favourable decisions for the minority group. The provincial schemes have very different implications. Whereas the Quebec and New Brunswick systems do not provide additional financial flows to the local authorities, the other provinces do. The local authorities have, in turn, considerable autonomy, so that the incentive effect is dependent upon the interaction between the general outlook of the individual authorities and the degrees of accountability which the provinces impose on the use of the funds.

Until very recently, there was little solid data on which to base any generalizations concerning the use of funds at the local level. I have recently completed one study of selected school boards in Ontario and am currently directing one which includes Manitoba and New Brunswick. [3] In order to deal with the other side of the 'coin' referred to earlier, I should like to draw upon my Ontario study to provide a further insight into the complexities of school board (division) allocation processes.

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[1] Canadian Teachers' Federation 1976, p. 12. According to the Commissioner of National Languages, Dr. M. Yalden, in a private communication, the adoption of the figures appears to have been the result of a political process rather than solely a "technical" one.

[2] This discussion is based on an unpublished paper by Prof. E. Rideout, "The Flow of Federal Dollars to Support Minority and Second-Language Education Programs" (1978).

[3] See note 1 (page 15)

Boards had widely varying practices, which were grouped into four separate allocation models, dealing with the treatment of personnel costs, the bulk of the costs incurred:

(a) Equalization between language groups by cost: A deliberate effort to equalize expenditure between the two language groups within boards. (This might include a small differential weighting for textbooks and learning materials to favour Francophones).

(b) Equalization between language groups by pupil: teacher ratio: A deliberate effort to equalize pupil: teacher ratios between language groups. This involves making a proportionately higher expenditure for the group having the higher average salary. In the cases studied this was translated into a higher expenditure for Anglophone teachers and a higher per pupil expenditure for Anglophones.

(c) Board-wide equalization with ad hoc assessment of perceived school need: This method involved starting with a general pupil teacher ratio for the board as a whole and then doing ad hoc assessments of specific school needs.

(d) Weighting for specific factors: This system is based on a general pupil:teacher ratio which is then weighted to take into account factors similar to those in the provincial grant system (special education, language, etc.). The actual effects of such systems on allocations by language group are extremely difficult to determine, unless the sole grant criterion is language. When multiple weighting factors are used, it is possible for the action of one set of weighting factors (e. g., school size, special education) to have an effect nullifying the weighting factor given for language. Thus, one might allocate a certain number of FTE's to schools on the basis of their French enrolments and additional FTE's to other schools for different factors; when all is added up, one might discover that the results are that both groups receive exactly the same amount on a per capita basis - thus effectively nullifying the 'advantage' given to Francophones.

Of these models, the first two were favoured by elementary boards, the last two by secondary boards.

More significant for policy making was the discovery, after detailed analysis of board expenditures, that the net result of these different policies was not to allocate funds differentially in favour of Francophones. Or, more precisely, even though the mechanisms sometimes were perceived to allocate additional funds, the net effect on expenditures did not demonstrate a consistent tendency to spend larger sums on the minority group, even though the provincial subsidies were quite substantial. These results were used in the formulation of new provincial policies in 1977, which have strengthened somewhat the degree of accountability at the local level. At the time of writing the further tightening of provincial controls continues to be actively discussed.

It should be made clear to persons not familiar with Ontario, that there are a number of alternative explanations to the failure to demonstrate consistent differential expenditures in favour of Francophones by the school boards. To begin with, despite the system of subsidization, there was not in existence a clear policy directive that a differential expenditure should occur at the board level. Among the reasons contributing to this policy situation is the realization that a situation of bilingualism might result in added costs that cause the total expenditures for a board to rise, both for Anglophone and Francophone pupils, e. g. through reducing the size of schools for both language groups. On the other hand, one situation would clearly dictate that a differential expenditure should occur, namely if the minority group had clear educational needs which were not being adequately met by the practice of expending equal or roughly similar amounts on the two language groups. Since our research also included a study of educational services and confirmed that significant needs were not being met for the Francophones, the obvious implication was that differential expenditures in favour of Francophones would be entirely in accordance with a grant system which provides additional subsidies in proportion to the number of Francophone students.

The underlying problem in situations of this nature is to ensure that services are provided that correspond to the policy intents of subsidies.

V. LEVELS OF SERVICES OFFERED TO MINORITY LANGUAGE GROUPS

An interesting finding of our research was that the scientific literature had given little attention to the theoretical definition of level of service as applied to the needs of minority language groups, particularly in the context of cost studies. Almost all cost studies refer to a majority language system and begin with the postulate that educational service can be treated in a common-sense manner. Indicators of service vary but include such things as pupil:teacher ratio, number of square feet of available floor space in school building and so on. Alternatively, one devises measures of effect on students, which is sidestepping the issue of service: a service is a means to an effect, as indicated by the simple diagram:

(a)		(b)		(c)
resources used	---	service activity	---	user
(cost)				(effect)

Looking at the diagram from the resource 'end' one perceives cases where the furnishing of a resource might not necessarily constitute a service by most definitions of the term - e. g. putting a teacher in front of a classroom of children who do not speak the same language as the teacher; if the effect of this interaction is to alienate many of the children from the educational process, to depreciate their sense of personal worth and to replace their native culture by another which they or their parents do not necessarily want, then the process can hardly be called educational 'service'. 'Disservice' would be more descriptive. Or, to approach the diagram from the other end, the effect on the user, we find that the majority of measures applied to such situations are intended to show relative disadvantage of certain minorities - a very valid comparison if one assumes that the needs and aims of the minorities are the same as those of the persons to whom they are being compared. Such a comparison becomes very tenuous indeed if the standard of measurement is the cultural expectations of a majority language group. Such a measure of effect may be consistent with the models we have termed assimilationist, transition-melting pot and language maintenance-folkloric; it is definitely contrary to the language maintenance-cultural conservation model. The premise of the latter is that the minority has a different culture. Measures showing 'disadvantage' may sometimes only be indicators of different sets of aims among the users of the educational system.

The theoretical complexity of the problem led us to postulate a language-related basis for comparison, the "expected standard of service in a language". To do this, we distinguished between a primary service (with which the user has direct contact, such as a teacher who may speak, or may not, speak the language of the student) and a secondary service (a service which supports a primary service, e. g. the principal of the school who supervises the teacher). In the context of the Ontario system, where a goal of the French language schools is to create a French-language cultural environment to the maximum extent possible, it is official policy, for example, that minority language teachers be supervised as far as possible, by persons of the same language group, that librarians and support personnel be Francophone, and so on. Simply phrased, the expected standard of service in a language is that all primary and all relevant secondary services are given entirely in the language of the users. With this simple construct it is possible to arrive at a definition of lower level of service which can be applied with rigour to a wide range of educational services.

In our study we distinguished several types of analysis, three of which are summarized in Table 3 as applied to minority Franco-Ontarians:

(a) Logical analysis of presence or absence of services. This consists simply of deciding whether a given service exists in a language or not. Cases 1-A to 1-D illustrate simply logical alternatives presented without consideration of the social or educational context. In the last column is an indication of the resulting situation of equality or inequality. Such an analysis assumes that equality is based on treating everyone alike. This is what Jencks (1972) refers to as providing 'equal opportunity'.

(b) Situational analysis of compensatory service requirements. Cases 2-A to 2-D in Table 3 illustrate the implications for equality of relating the presence or absence of services to the specific needs of a disadvantaged group. A typical compensatory need for a minority group arises if they live in an area where all the media function in the language of the majority group and if they also are obliged to work and transact most business in the majority language.

Table 3. Inequalities resulting from presence or absence of services

Case	E	F	Contextual Factors	Resulting inequalities
LOGICAL ANALYSIS: PRESENCE/ABSENCE				
1-A	0	0	Nil	Equal: neither has service.
1-B	1	0	Nil	French have lower level of service.
1-C	0	1	Nil	French have higher level of service.
1-D	1	1	Nil	Equal: both have service.
SITUATIONAL ANALYSIS: COMPENSATORY NEED			As minority group, Francophones have needs for compensatory assistance in order to overcome situational factors.	
2-A	0	0	If missing service is compensatory, then Francophones may need it to obtain equal satisfaction of learning needs.	French have lower level of service.
2-B	1	-	Unless some specific compensatory need among Anglophones (cf. children of recent immigrants), Francophones presumably have at least same need.	French have lower level of service.
2-C	0	1	If service is compensatory only, then Anglophones do not need.	French have equal level of service.
2-D	1	1	If service is exactly equal but Francophones have special needs, these are not being met.	French have lower level of service.
SITUATIONAL ANALYSIS: LANGUAGE INDEPENDENT			The service can be rendered in either language without affecting quality	
3-A to 3-D: All combinations			Provided that access to service is provided for both groups, then language of delivery does not affect equality.	French have equal level of service in all cases.
QUALITATIVE ANALYSIS				
4-D	1	1	If service appears overtly the same, quality may affect either group adversely.	Equal, but secondary analysis may determine that either group has lower level of service.

Such a situation represents a permanent threat of linguistic assimilation. Children living in such an environment may need special help in order to maintain their native language up to a level even comparable to that of their second language. It should be noted that in three of the four cases the minority group has a lower level of service. In only one case do they attain equality of level of service - when they receive a service which the majority group does not have at all. (Obviously, this only applies to services which correspond to a compensatory need; if there is no special need for compensatory service, then cases 1-A to 1-D apply). On the other hand, cases 3-A to 3-D are presented for logical completeness to show that some services may be irrelevant to language. Thus it is clear that (a) if it makes no difference whether a given service is offered in the majority or minority language and (b) if the service exists in either or both of the languages (or if it does not exist at all) then both groups have equal treatment in all cases.

(c) Analysis of quantity and quality of resources. Case 4-D in the table introduces a most important dimension, that of 'quality'. If a service exists on an apparently equal footing in both languages - e. g. a textbook exists for the French language class in mathematics and another one exists for the English language class - then there is apparent equality. However, analysis of the quality of the resources used (such as the textbook) may reveal inequality. A typical case in point exists when the minority language textbook is a translation of one written in the majority language; if the two languages structure ideas differently (as is frequently the case between, say, French and English), then the minority language textbook will be contributing to the erosion of the students' 'sense' of their own language.

(d) Analysis of user choice ranges. This is closely related to the first two types of analysis listed above. An example of such an analysis in our study was the examination of the number of credit courses available in mixed secondary schools. In a typical school that had a student population approximately two-thirds English and one-third French, the ratios of courses taught in English to those taught in French was as follows: grades 9 and 10 - 9:1, grades 11 and 12 - 5:1, grade 13 - 10:1. The relevance of a measure of choice ranges is very great. In most of the mixed secondary schools we studied, French-speaking students took between 20 and 35 per cent of their courses in French, the remainder in English; on a year-by-year basis, there was a clear phenomenon of linguistic 'crossover' as they moved from studying almost entirely in French at the beginning of secondary school to almost entirely in English at the end. Such analyses are also pertinent to the examination of other resources, such as library holdings.

(e) Analysis of discontinuities of service language. This refers specifically to the cases where primary and secondary services are in different languages. In the definition of expected standard of service, the word 'relevant' should be emphasized with respect to secondary services. This is important with respect to certain policy options of the Ontario situation (and others), such as the desire to ensure a unilingual line of supervision of teaching personnel or to maintain a distinctive French cultural environment in a school. In the latter case, policy establishes a hierarchy of preferred organizational modes: if possible a separate school for Francophones; if not, then a separate wing of a school and, finally if no other option is available, separate classes within an English school.

This discussion of different types of analysis is intended to give a sense of the complexity of the issue of defining what an educational service is when applied to a minority language group. It is important to note that the use of the different measures of equality is subject to considerable debate in most settings where different language groups live in close proximity. In our own environment, it is quite common for the majority of persons to accept readily the need for compensatory educational programmes for the mentally and perceptually handicapped as well as the poor and various other groups traditionally identified as disadvantaged. But among English-speaking Canadians there are many who cannot accept the premise that Francophones have special needs which would require compensatory measures. This is in part because there is a generally low level of understanding of the various social and educational consequences of being in a minority group; also, however, the causes lie in rivalries arising out of historical situations of conflict and confrontation. This problem of relations between language groups is obviously not limited to Canada.

VI. DIFFERENTIAL ACHIEVEMENT

Persons who have studied the literature on social disadvantage and its relationship to educational achievement are accustomed to a relatively typical pattern of findings. In most industrialized societies, language is related to social class and economic status, and language minority groups tend often to fall at the lower end of the scales (with the exception of a few rare, particularly dynamic immigrant groups). The usual pattern is that one trait of social disadvantage reinforces another: the minority language individual, forced to study and live in a non-receptive environment, tends to achieve lower in educational systems and the resulting lower relative level of educational achievement contributes for the next generation to reduce chances of upward social mobility.

These dimensions of the achievement problem are well known, so much so that it would appear useless to belabour them. Nevertheless my observation has been that large numbers of educators and the general public ignore the consequences of these results or refuse to be guided in their actions by their logical implications. For this reason, rather than discuss the theory of differential achievement for minority groups, I should like to turn to some of the practical implications for real-life situations of what is evident from the existing theory and research findings.

The first problem is that of negative attitudes towards the development of bilingualism and, particularly, the fear that students will be harmed by schooling in their mother tongue. This fear of mother tongue education is not limited in Canada to persons of the majority group who assume, for whatever reason, that French instruction may be bad for Francophones. There is a widespread belief that learning one language will interfere with learning another. Indeed, there is a lot of nonsense in this respect based upon non-scientific and non-analytical generalizations on the topic of 'language interference'. Many Francophone parents in Canada fear that if children are too exposed to French in school, it will handicap them in learning the English required to get good jobs and otherwise make their way in a dominantly English-language society. Attitude surveys regularly reveal a significant number of Francophones who favour bilingual (i.e. something like 50-50) education. [1]

In addition, there is general confusion about the implications of research on the effects of early childhood immersion programmes for learning a second language. Most of the findings in Canada show that Anglophone children placed in Kindergarten classes (not mixed with Francophones but as a separate group) with a teacher who only speaks French to them will usually acquire the ability to pursue their elementary schooling entirely in French; in addition, the evaluation studies show that there is little detrimental effect on the native language of the students. For example, it takes the children taught to read in their second language, French, only a short time to learn to read in English, after the topic is introduced, and they rapidly overcome any achievement deficit by comparison with Anglophones educated entirely in English [2]. By analogy, many persons assume that if Francophone minority children are placed in English classes, their French skills will not suffer ("because they have it at home").

Both sets of conclusions are probably quite incorrect in most instances. There is a strong body of research which indicates that the findings about language learning for minority groups are contradictory to, and often the exact opposite of, the findings for majority groups. [3] Take, for example, the question of immersion for majority group children: by and large, they are exposed by the entire cultural environment outside the school - including television and the other media - to their own language at all times. Conversely, the minority language students may only be able to use their language in the school and, in limited situations, in the family unit. The remainder of their experience is in the dominant language. Increasing the use of the majority language in the school soon deprives minority children of contact with the opportunity to use their own language sufficiently to maintain it. Two results ensue: At the group level, minorities such as the Francophones in Canada, tend to assimilate into the majority group, some losing their mother tongue entirely, others not using it even in the home setting. At the individual level, one has the well-known syndromes of poor academic achievement, aggravated in proportion to the degree of the requirement that study occur in the majority language.

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[1] Comeau 1971; Bordeleau et Desjardins 1976

[2] cf. Stern et al. 1975

[3] Some of the sociological constructs underlying the language behaviour is given in Churchill 1976b.

Conversely, studies of minority Francophones have demonstrated in the Canadian setting that learning in French does not have an adverse effect upon other measures of achievement, such as skills in the second language or knowledge of subjects such as mathematics or social studies. [1] A series of studies of language behaviour among Franco-Ontarians, among the most extensive in existence for such minority groups, has shown clearly the societal rôle in development of majority language skills for a minority and the conversely negative effects of the social milieu upon the conservation of the mother tongue [2]. Certain studies may be cited to suggest that minority students studying in their native language have a lower level of achievement than majority language students studying in their respective language, but these findings do not contradict the others: the minority students may suffer from other extra-academic problems such as lower socio-economic status, which would explain the differences. In addition, since minority students typically must spend a part of their day learning the majority language in school, there is a cumulative loss of time spent on study of other subject matter. [3]

In simple terms, there is no proof that minority group students suffer any deficit as a result of study in their mother tongue and there is considerable evidence that they do suffer from being forced to study in a second language.

A second problem not generally addressed by those considering the problem of bilingualism is that of over-all system efficiency. Debates about the importance of minority language education in the Canadian environment frequently dwell upon strictly scholastic measures of achievement such as those just discussed or upon the very narrow issue of additional tax payments at the local level if some programme is expanded or created to assist the minority. It is extremely rare to see consideration of larger system issues in making decisions. What is known of general measures of system efficiency should overshadow these considerations. For example, studies dating back to the 1960s revealed that Francophones in Ontario suffered massively from the phenomenon of being forced to study in English at the secondary school level (where French instruction was extremely limited until 1968). [4] A prime cause was a sort of 'streaming' in secondary schools where Francophones were shunted off into vocational streams of education after they failed to obtain high marks in 'academic' courses taught in English. [5] Nearly ten years after the introduction of French into the secondary system, my own study revealed that the large-scale phenomenon of crossover was continuing wherever the Francophones did not have their own secondary schools and were forced into mixed language situations. [6] The cumulative impact of such system problem is enormous, as witnessed by a single statistic reflecting the effect of dropouts from secondary school: The latest census figures show that of adult Franco-Ontarians (person 15 years and over who do not attend school), fully 71 per cent have only a tenth grade education or less, compared to 56 per cent for the province as a whole. [7]

The third and final problem I should like to raise in connection with differential achievement for minority language groups is the difficulty of convincing public opinion that such problems should be given the same attention as the problems affecting, for example, the perceptually and physically handicapped. Because language differences exist in societies where political polarization based on language often goes back for generations, attitudes simply do not often permit one group either to admit its disadvantage or the other to accept it. In such situations, regular, repeated research on the phenomenon of differential achievement has a cumulative effect that, I believe, can help gradually to overcome the inertia of inherited attidues.

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[1] Hébert et al. 1976; Cummins 1978 for a comparative discussion of findings.

[2] cf. Mougeon, Canale et Bélanger 1978 and references cited therein.

[3] cf. Studies by Ellis and Fleming cited in Churchill 1976b.

[4] The studies are highlighted in Report of the Royal Commission on Bilingualism and Biculturalism. pp. 82-93

[5] Carlton 1967

[6] Churchill, Rideout, Gill and Lamerand 1978

[7] Les héritiers de Lord Durham 1977, p. 38

VII. IMPLICATIONS

This discussion has ranged freely over the problem of minority language education, outlining some of the dimensions of inequality that exist and some of the problems encountered in remedying them. The findings from the Canadian situation are very similar to those from other countries, even those with totally different political and socio-economic situations. The assessment of the Experimental World Literacy Programme, clearly points out that a major hindrance to the development of literacy in many countries is the failure to foster literacy in the mother tongue. [1] Meanwhile numerous countries around the world are making rapid progress in developing mother tongue education, for example several countries in West Africa. A recent study of some of those countries enunciated three observable factors that are obviously going to be a major problem for education planners, not only in Africa but elsewhere: [2]

> "Language policies are rarely stated explicitly"
>
> "Language policies tend to fluctuate"
>
> "There is often an inconsistency between policy and practice".

In this situation, the comparative study of experiences by different countries in the field of planning for minority language education appears to be a fruitful endeavour which should be of great benefit in deriving new approaches to solving the problem of inter-group inequalities.

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[1] The Experimental World Literacy Programme: a critical assessment, pp. 168-170.

[2] Bamgbose 1976, p. 17-18.

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Educational inequalities in Upper Volta

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INTRODUCTION: THE ABSENCE OF ANY SPECIFIC POLICY TO REDUCE EDUCATIONAL INEQUALITY

The purpose of this paper was to present the "general policy of Upper Volta, and significant schemes to reduce educational inequalities". But "truth will out", and I may as well state, right from the outset, that this country has no specific policy to reduce social inequalities in general. One initial symptom lies in the lack of general studies of education in Upper Volta around the specific theme of equality; consequently data are sparse, fragmentary and incomplete. However, the dynamic of equality, which is as real as the inequalities actually suffered, lies dormant in each of the educational innovations implemented, ready to burgeon and shatter contradictions.

I. BRIEF ILLUSTRATIONS OF INEQUALITY IN EDUCATION

A quick look at the Upper Volta school and university system reveals three main types of inequality: inequality of access and success between the sexes, inequality of involvement due to social background, and inequality of supply depending on region. It is important to stress that these are statements of fact and make no reference to any deliberate policy of discrimination.

Educational inequalities between the sexes

Females are less well represented than males at every level of education, as can be seen from Table 1 showing the general situation of education in 1975. By way of illustration, let us take a look at primary and general-secondary education.

In primary education, although girls are still under-represented, their proportion is nonetheless rising sharply. In 1965, out of a total enrolment of 83,719, 30.8 per cent were girls, in 1975, total enrolment stood at 133,660, while girls had increased their proportion to 37 per cent. In absolute terms, the number of girls had increased by 84.7 per cent in 10 years, while that of boys had increased by 47.7 per cent.

An examination of progressions reveals no significant differences between boys and girls. Data for the period 1970-1976 yield a typical progression for public primary education as follows:

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Certificate-holders
Boys	1 000	837	681	575	482	550	221
Girls	1 000	838	684	571	472	500	161
Altogether	1 000	837	682	573	478	530	198 198

Particular attention should be paid to the sharp difference in final examination success rates: for a batch of 1,000 boys in Year 1 we obtain 221 certificate-holders, and 161 out of an equivalent batch of 1,000 girls, which gives us 19.66 pupil/years for one male certificate-holder and 26.25 pupil/years for a female certificate-holder. Similar studies for the period 1966-1972 yielded similar findings, and nothing seems to have changed since then. Is the greater emotional instability of girls at examination time a sufficient explanation of these uneven success rates, with their repercussions on female enrolment in secondary education?

In 1965 there were 4,537 pupils in secondary education, 20 per cent of them girls; in 1975, total enrolment had risen to 12,682, of whom 29 per cent were girls. In absolute terms, the number of girls had risen at an annual average of 15 per cent, whereas boys had increased by 9 per cent. In terms of the enrolment, therefore, there had been an improvement. But in terms of success, though, the situation gave cause for concern. Progressions showed that for 1,000 girls entering the first year of secondary education, 666 reached the end of the first stage four years later, while 394 obtained school-leaver's certificates. In the same period, out of 1,000 boys, 956 completed the first stage, and 665 passed the final exam.

The low rate of women's enrolment in education is reflected in their low representation in the working population. Women account for 13.1 per cent of total public-sector employees and for only 4.7 per cent of private-sector employees.

Educational inequality linked to social background

Education statistics only very crudely record the social background of secondary-education pupils, dividing them into nine socio-professional categories: farmers, stockbreeders, artisans, tradesmen, civil servants, servicemen, professions, private-sector employees, retired, others. This classification does not permit hierarchization of the very wide range of earnings existing both within a given category and between categories. Columns I and II of Table II (appended) demonstrate the considerable proportions represented by sons of peasants (57.7 per cent in 1970) and sons of civil servants (23 per cent in 1970); by 1975, these proportions had fallen to 46 per cent and 20.9 per cent respectively, this drop being due to a rise in the proportion of servicemen's sons (10.2 per cent in 1975, compared with 2 per cent in 1970) and of sons of the categories: professions, retired persons, and others. The proportion of private-sector employees' sons fell from 2.2 per cent to 1.7 per cent in the same five years. These aggregate figures cover a multitude of data, and it would be unwise to draw over-hasty conclusions from them in the absence of more detailed studies. When one bears in mind that since 1966 enrolment in the state secondary-school system has virtually stood still and that, consequently, the greater number of pupils is to be found in private education, it becomes easier to understand why secondary-school attendance trends are increasingly in favour of the better-off socio-professional categories. This is what Columns I and II of Table III try to show. In this table the nine socio-professional categories are divided into two groups. The first group is assumed to have irregular incomes and the second regular incomes. The second group improved its secondary-school attendance in the period 1970-1975, from 33.1 per cent to 41.5 per cent, while the first group dropped from 66.9 per cent to 58.6 per cent. In absolute terms, pupils from the second group increased by 49.9 per cent and those of the first group by 4.1 per cent only. These figures are a fairly accurate reflection of the degree of inequality when one bears in mind that this second group in fact represents roughly 0.7 per cent of the population and 1.4 per cent of the working population.

The purpose of the system of scholarships and study grants applying in the secondary system is intended to reduce inequalities. Indeed, Columns III and IV of Table II show that 71.1 per cent of grant and scholarship holders were sons of peasants in 1970. This proportion was 73.8 per cent in 1975, while at the same time the proportion of civil servants' sons holding grants and scholarships fell from 13.5 to 7.3 per cent.

However, Columns V and VI show that the state has, as is well-known, cut back the volume of study grants: out of 8,720 pupils in 1970, 71.3 per cent were grant or scholarship holders, whereas in 1975, out of 10,379 pupils, only 40.4 per cent held grants or scholarships, which means that absolute numbers of grant-holders had fallen, from 6,221 in 1970 to 4,202 in 1975. While this cutback hit all categories, the heaviest reductions affected the supposedly better-off categories. Indeed, Columns V and VI of Table III show that the drop between 1970 and 1975 was much greater for the second group than for the first: from 84.4 per cent to 58.8 per cent, and from 44.6 per cent to 14.5 per cent, respectively.

In the light of the irresistible influx of better-off children into the secondary-school system and of the falling volume of state grants, we may conclude that the dominant stratum in society has launched out on its takeover of the education system. Until very recently, the "élites" emerged from the anonymous peasant masses; today the situation is changing. At the April and May 1978 elections, one of the four presidential candidates was the son of a former speaker of the National Assembly. One of the three constitutionally recognized parties is led by the son of an ex-President of the Republic. In the more closeted world of business one could make many more discoveries of like nature.

Regional disparities

Upper Volta is divided into 54 administrative units (urban communes and sub-prefectures). Average primary-school attendance was estimated at 12.96 per cent in 1976, but the extremes were 68.17 per cent and 3.31 per cent. The divisions may be grouped into ten departments representing regions, each with its own more or less specific characteristics, from either an economic, a geographic or an ethnic viewpoint, etc. Table IV summarizes the situation for each department. The extremes are 23.5 per cent and 3.6 per cent. In all, 3 departments out of 10 (Hauts Bassins 23.5 per cent, Centre 20 per cent, Volta Noire 15 per cent) have school attendance rates above the national average; three others come close to the average (Centre-Ouest 11.86 per cent, Sud-Ouest 11.5 per cent, Centre-Est 11.26 per cent), while four others lag well behind (Nord 8.23 per cent, Est 2 per cent, Centre-Nord 5.18 per cent and Sahel 3.6 per cent). Thus we find three fairly distinct groups. In the front rank we find the western regions of Upper Volta, which are economically better off, and the department containing the capital, which acts as a magnet for the entire country. The second group represents the average areas, from a geographic and economic point of view, on the southern borders of the country. Lastly, the third group lies in the north and the east, heavily hit by the drought, which wrought particular havoc in 1972 and 1973.

Table V tries to examine disparities from an ethnic and linguistic viewpoint. Six main groups have been selected, representing specific entities in terms of ethnic and linguistic groups, geography and history. However, the so-called western region is an arbitrary category, with no ethnic or linguistic unity; all we can say is that the Bambara language predominates. Lastly, this table does contain one error, which is attributable to the fact that it is impossible to pinpoint populations that have moved to areas other than their area of origin. The Mossi region accounts for roughly 50 per cent of the total population of Upper Volta and for about 50 per cent of primary-school enrolments; the western regions (26.7 per cent of the total population) are over-represented (36.6 per cent of school enrolments), while the Gourmantché and still more so the Peul regions are distinctly under-represented.

These brief remarks on educational inequality show that the field of investigation is still vast and relatively unexplored. However, pending more detailed studies, one serious inequality sticks out like a sore thumb; namely, the growing gap between town and country in every aspect of life. The average income in Upper Volta is no more than $100; in the civil service it ranges from $1,112 to $11,840, and the extremes are greater still if we take politicians' (ministers, deputies) and private sector managers' earnings into account. The highest incomes are concentrated in the towns, which are centres of extrovert growth. The rural areas represent 82.48 per cent of the country's population, while school attendance amounts to 8.68 per cent. The urban areas contain 7.52 per cent of the total population and have a 58.68 per cent school attendance rate. Are there any educational schemes designed to reduce these town/country disparities?

II. SOME EDUCATIONAL SCHEMES

Since Upper Volta attained independence, three educational schemes emerge from its educational development. These are: the creation of rural education in 1961; the setting-up of a Unesco/Upper Volta scheme in 1967 designed to achieve equality of access to education for women and girls; and the setting-up, in 1975, of the Office for lifelong education and for functional and selective literacy. These schemes arose out of many different motives, but their common denominator is that they are all chiefly concerned with the countryside. In terms of equality, each scheme highlights a contradiction.

The rural school: a school for second-class citizens

Owing to Upper Volta's inability to finance schooling for all its school-age children, a scheme was devised in which schooling would be shorter (3 years), with cheap teachers in buildings made of local materials, the aim being to provide an education oriented towards rural development. Nobody questions the aim, but the quality of the objective does not in itself guarantee the success of the scheme.

Even with competent teachers, which was not the case, and with adequate and sufficient equipment, it would have been difficult, without actually demonstrating it, to make people believe and get them to accept that this form of - very rudimentary - education offered as great a chance of climbing the social ladder as does the conventional primary school. Even when the peasant's calling keeps a man alive - which is far from being the case in the Sahel - it has never, with a few exceptions, been a title of nobility. Which is why, ten years after the launching of the scheme, the rural school has achieved no more than 19 per cent of its quantitative objective; as for the rest, it is enough to note that, according to foreign observers, it has fallen into 'real disfavour'.

Today, the people in charge of this type of education are seeking to remedy the errors of the past - and with success, it must be added. Village communities are motivated to found and run centres; teachers are being retrained, their pay improved, special aids for farm training are now being made available; from the point of view of teaching methods, national languages have taken the place of French as the leading teaching vehicle. But not all the problems have been cleared up yet.

How is one to avoid allowing this sort of training to become a ghetto, a sort of alternative education reserved for people whose sole chance it is?

What needs to be done for rural education to catch up with the rest of the education system by offering opportunities of access to higher levels of knowledge and skill? How can we make training for young farmers as attractive as training for nurses, policemen or office workers? Educators surely do not have the last word in this.

Before equality of access to education for women and girls, and after

In accordance with the principle of non-discrimination in education, Unesco launched three experimental programmes in 1967-68, one in Asia, one in Latin America and the third in Africa. These programmes were designed to study and overcome the obstacles standing in the way of women's and girls' access to education. The government of Upper Volta implemented the African programme. The social and economic context in which women are inferior and exploited is largely responsible for inequality of access to education.

Because women are particularly in danger of their life when pregnant, in childbirth, or during breastfeeding, the equal access to education programme built 43 village maternity hospitals; 164 traditional village midwives attended training courses to improve their techniques and to learn new standards of hygiene. Children in the countryside are very vulnerable to malnutrition and to various sicknesses, which are women's nightmare. Water is the major carrier of disease, and so the programme taught villagers the use of the charcoal filter: more than a thousand such filters are now in operation in the areas affected by the programme. Radio programmes on health and nutrition education are broadcast for women, of whom more than 3,000 are organized into 85 listening groups; practical demonstrations are given by women group leaders and instructors, of whom the programme has trained 237. Village pharmacies have been set up for when sickness strikes.

There can be no equality of access to education if the women's entire day is taken up with the drudgery of fetching wood and water, and doing the cooking, after having done her share of tilling the family field. That is why the programme also provided the villages concerned with a total of 45 donkey carts to transport wood and water; 67 millet mills have been set up, and other technologies designed to save time and take the backbreak out of work are being studied (solar cookers, dehuskers, looms, etc.). Women need resources of their own in order to run and maintain all this equipment; to this end they now farm 556 communal fields and are devising new money-raising activities. Men also have a rôle to play in these activities: they take part in digging wells (219), in various construction projects called for by the programme (263 latrines, 49 adult education centres). This broad action on women's social and economic environment has had a wide appeal, attracting 18,402 women

to literacy classes conducted in national languages, and 528 women and girls to sewing classes. In fact, this is not so much an equality of access to education programme as a scheme to integrate women and girls into the development process as fully-fledged participants in the work and the fruits of development. Today, women leaders are emerging in the 92 villages affected by the programme; but their ranks will soon be swelling, for it is planned to extend the programme to cover the entire country over the next five years.

What would be the use of this great mobilization of women, their equal access to education - and what education! - if tomorrow they were to find themselves once again, in different forms, in the same old "socially inferior and economically exploited" conditions?

National language literacy programmes: to what end?

In the two schemes described in the foregoing, educational work is conducted in national languages. But there are many other educational schemes also conducted in national languages. In recognition of this trend towards increased use of national languages in education, the government set up the Office for lifelong education and for functional and selective literacy in Upper Volta, in 1974. The aim of the Office is to wipe out illiteracy in Upper Volta. It has been deliberately decided to use national languages in order to adjust the instruction given to the needs of the populations concerned. As a result of these directives, the Office is active in three main directions.

Firstly, it is expected to promote national languages through scientific study of them, by transcribing them into codified and standardized alphabets: in a word, they need to be made practical, for use in teaching. This work is the task of the National Commission for Voltaic Languages, whose secretariat is run by the Office for lifelong education and literacy.

Secondly, the Office is responsible for the production of literacy teaching aids in the different national languages. Similarly, there is a call for national-language publications designed to stimulate and sustain interest in learning these languages.

Lastly, the Office must train literacy instructors. All of Upper Volta's literate population are potential literacy trainers, but motivating them and training them for the launching of a national literacy campaign ultimately will be a major task. But there is nobody to decide on any such campaign. This is hardly surprising, since the language of power is French; the language of the administration is French and, to some extent, French is the language of business. Barely 5 per cent of Upper Volta's population is capable of using French, yet conventional education neglects the national languages.

Conclusions

From these few observations it should be clear that the school and university system is riddled with inequality, doubtless unintentional, but nevertheless left untackled. This school and university system is the expression of a fundamental inequality between the dominant minority and the majority. Lastly, most of the peoples of Upper Volta have no other educational resource than peripheral schemes such as rural education, the equal access to education scheme, or the functional literacy in national languages scheme. Marginal as they are, these programmes do share a common concern, namely the need to provide underprivileged populations, in the rural areas especially, with a minimal, basic, education.

The concept of basic education is closely bound up with development strategies based on the satisfaction of essential needs, their underlying motives being justice and equality. Not all people demanding education in a developing country have the same requirements, even if their claim is always expressed in terms of basic education. Basic education must therefore be variegated and diverse in method. But how are we to go about achieving some overall unity in the education system so as to avoid parallel or self-contained educational forms likely to be perceived as second-rate education?

It is very easy to say that the principle of equality calls for more flexible organization of education systems, for greater permeability between them, but Upper Volta has achieved nothing in this respect yet. There is little in common between functional literacy training for a peasant, training for a young farmer, and the training of an agronomist; there is no real community of fate: their aspirations are different.

The one element capable of lending credibility to strategies designed to satisfy essential - though necessarily varied in kind and level - needs would be a community of destiny, one that welded all the members of society and justified the position of each in relation to the whole. This would also serve to justify the diversity of forms of basic education, with their different contents, but still drawing inspiration from a single fountain of justice and equality.

While a certain sense of solidarity is needed on a national scale, it must take root in the regions. It is also in the regions that the fight for equality in education must be fought. Education in Upper Volta will probably fail to develop further unless it is planned at regional level and linked to development projects. This is because the African tendency to link school and life, school and development, can only take root on a region-by-region basis. The trend towards the use of national languages inteaching makes no sense unless education itself is rethought and adapted to linguistic regions. Lastly, if the development of education obviously requires fresh resources, again these are best sought in the mobilization of regional possibilities.

The kind of regional development that is synonymous with devolution of power to intermediate echelons runs directly counter to the type of centralized power and to the pattern of urban development characteristic of Upper Volta, namely unequal power, and uneven development.

Table I. General data on education in Upper Volta on 1.1.1975

Educational level	No. of establishments	No. of pupils				
		B	%	G	%	Total
Nursery	10	265	52,4	241	47,6	506
Primary	688	83924	62,8	49736	37,2	133660
Training for young farmers	731	17431	91	1724	9	19155
General secondary	37	8959	70,7	3723	29,3	12682
Normal	4	310	81,2	72	18,8	382
Technical	12	1528	60,3	1006	39,7	2534
University of Ouagadougou	1	411	79,4	107	20,6	518
Total	715	112828	66,6	56 609	33,4	169437

Table II. Breakdown of state and private secondary school pupils by social origin

Socio-professional category	I 1970		II 1975		III 1970		IV 1975		V 1970 % III/I	VI 1975 % IV/II
	Total	%	Total	%	Grant	%	Grant	%		
1. Farmers	5024	57,7	4770	46	4428	71,1	3099	73,8	88,1	64,9
2. Stockbreeders	82	1	166	1,6	63	1	89	2,1	76,8	53,6
3. Artisans	135	1,6	79	0,8	108	1,8	34	0,8	80	43
4. Tradesmen	296	3,3	357	3,4	154	2,5	80	1,9	52	22,4
5. Civil Servants	2013	23	2165	20,9	834	13,5	308	7,3	41,4	14,2
6. Servicemen	175	2	1067	10,2	89	1,5	81	1,9	50,8	7,5
7. Professions	86	1	318	3	31	0,5	68	1,7	36	21,3
8. Private sector employees	200	2,2	175	1,7	80	1,2	34	0,8	40	19,4
9. Retired	408	4,7	575	5,5	254	4	133	3,1	62,2	23,1
10. Others	301	3,5	707	6,9	180	2,9	276	6,6	59,8	39
T O T A L	8720	100	10379	100	6221	100	4202	100	71,3	40,4

Table III. Classification of state and private secondary school pupils in two groups

Group I - irregular income (1+2+3+4+10)	5838	66,9	6079	58,5	4933	79,2	3578	85,1	84,4	58,8
Group II - regular income (5+6+7+8+9)	2882	33,1	4300	41,5	1288	20,8	624	14,9	44,6	14,5
T O T A L	8720	100	10379	100	6221	100	4202	100	71,3	40,4

Table IV. Departmental primary school attendance rates

Department	Total population	school age pop.	school enrol.	School attendance rate
Centre	928 122	185 624	37 145	20
Centre Ouest	777 108	155 422	18 448	11,86
Centre Est	399 549	79 911	8998	11,26
Centre Nord	622 096	164 419	8 520	5,18
Est	404 081	80 815	5 600	6,92
Hauts Bassins	571 954	114 391	26 891	23,50
Nord	514 381	102 876	8 476	8,23
Sahel	356 436	71 287	2 635	3,6
Sud Ouest	357 509	71 502	8 236	11,5
Volta Noire	531 643	106 329	16 750	15,75
Total	5 462 879	1 092 576	141 699	12,96

Table V. Primary school attendance rates by ethnic and linguistic region

Region	Total population	School age population	School enrolment	School attend. rate
Pays Possi (Centre)	2 805 531	561 128	72 222	12,87
Pays Gourmantché (Est)	404 081	80 815	5 600	6,92
Pays Peulh (Nord)	356 436	71 287	2 635	3,6
Pays Gouroussi (Centre Ouest)	361 521	72 283	7 622	10,54
Pays Bissa (Sud - Est)	74 204	14 841	1 743	11,80
Pays de l'Ouest (Ouest et Sud-Ouest)	1 461 106	292 222	51 877	17,75
T o t a l	5 462 879	1 092 576	141 699	12,96

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The new school and policy to reduce inequality in the People's Republic of Benin

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Analysing inequality in the education system in the People's Republic of Benin is still a difficult task, owing to the lack of precise data on certain specific aspects of the problem.

National general statistics are available for each province, district and commune, but these do not yet give details as to disparities of access, school careers and results, thereby reducing a many-dimensioned educational phenomenon to a handful of variables easily collected by provincial officials, and not calling for any complex procedures. The people mainly responsible for gathering these data are school teachers and local administration.

In this respect, much still remains to be done to produce a more realistic, critical and dynamic school map incorporating a wide variety of regional criteria and based on detailed social analysis. For the problem of social inequality continues to act as a backdrop to analysis of disparities in terms of the following criteria: (i) socio-economic status; (ii) sex; (iii) linguistic and cultural characteristics.

Socio-economic status remains a vital factor, especially in the context of Benin society, with its large, low (and often precarious) income, rural population.

In the aftermath of independence, the school was regarded as a means of very rapid social ascent, since it had enabled a minority of national cadres to assume power in place of the occupier. The chief aim of the school at that time was to turn out "AKOWES", middle-ranking cadres who were needed to take over from the colonial regime, including its content. As heir to an education system that was tributary to the colonial regime, the school until recently applied a highly selective policy of training foremen and overseers, destroying the interests and cohesion of local communities.

It contributed to the emergence of a new social cleavage by giving rise to a well-to-do urban class, whose socio-economic power derives from the way it exploits its intellectual capital.

This class has contributed to the rise in educational supply and, through its spread, has gradually served to devalue the elementary-school certificates which gave admission to the formerly much-sought-after executive-grade jobs in the administration.

While this remark is valid for all those inside the school system, the situation of girls vis-à-vis the school represents an inequality of another kind. Thus, the Benin schoolgirl, who usually comes from a rural background, goes to school in the hopes of obtaining a school certificate which will subsequently enable her to find work in the town.

The school has thus become a magnet, often drawing to it country children eager to move up the social ladder to the towns.

Now that basic education has become insufficient, it is becoming increasingly important to gain admission to the next level of educational establishment, however, most General Intermediate Schools are located in district towns, whose population densities vary from one district to the next.

This spatial distribution may be accounted for in the sense that the school, as conceived and run, was chiefly concerned to turn out middle-rank officials to occupy semi-qualified posts in government offices in the towns. Thus in practice, owing to the new aspirations which it instilled in girls, it helped to render them unfit for manual labour in the fields.

In the Benin countryside, where people are very attached to their customs and traditions, girls play a major part in handing down tradition. The school, however, tends to devalue this cultural capital, by introducing new, exogenous values, often in flagrant contradiction to the original milieu. This heritage varies from one region to another, and from ethnic group to ethnic group, depending on the impact of traditions and beliefs and on the three principal religions in Benin: animism or ancestor worship, Islam and Christianity.

Thus primary-school attendance is highest in the southern provinces (60.26 per cent), whereas in the north the rates are much lower (below the national average), barely 35 per cent for the entire region, and the proportion of girls in this figure is very uncertain. In these circumstances, the solution to the problem of unequal access to school for girls must lie in the entire range of policies aimed at reducing inequalities in the education system. For a better understanding of the measures taken it is first necessary to grasp the phenomen.

I. INEQUALITY OF ACCESS TO SCHOOL FOR GIRLS

Right from the outset, girls' educational expectations are more limited than those of boys, which very early on reinforces the inequalities of opportunity of access to education between males and females.

Although female school attendance is rising rapidly, owing to the fact that more and more of them are gaining access to school, several factors of socio-cultural inertia contribute to make it difficult for girls to pursue their studies through to completion.

(1) Socio-cultural factors

Concerning parents: most of them are illiterate and mistrustful of the school as an institution. Their lack of motivation vis-à-vis the school is reflected in the limited interest they take in it, and by the conviction that schooling is somehow incompatible with what ought to be the girl's social rôle.

In the provinces of Oueme (South-East), Mono (West) and Zou (Centre), the Wémènon ethnic groups, of Fon, Yoruba and Adja origin, are made up of profoundly animist farmers and fishermen; they are deeply attached to their beliefs and traditions, and their chief concern is to keep their daughters to teach them their rôle as wife and mother.

In the northern regions of Borgou and Atacora, the growth of schooling for girls is strongly rivalled by Islamic tradition, especially among the Baribas. The impact of Islam is particularly sharp in these provinces, and the Koranic schools are regarded as the surest route to upward social mobility, often supplanting the public school.

Like boys, girls start going to the Koranic school at a very early age, but leave on attaining puberty.

This brief religious education, which complies with the beliefs and values of local society, competes powerfully with the development of the state school system. This cultural and regional aspect of unequal access to school for girls is further strengthened by socio-economic factors working against them.

(2) Socio-economic factors

Shortage of schools in rural areas, and particularly in the northern regions, exacerbated by scattered settlement patterns and the total or seasonal inaccessibility of certain villages a long way from roads and trade routes, and high school fees, which make deep inroads into the family budget, all contribute to keep children in the countryside, and girls especially, away from school.

Parents are expected to cover certain school expenses in the People's Republic of Benin: various contributions and costs, clothing, school supplies, contribution in cash or in kind to construction and furniture costs, and meals.

The figure involved varies between 5,000 and 8,000 CFA francs and for many parents in the rural areas this is prohibitive, as each child in school places a heavy burden on the family.

Girls in Benin are considered as a source of labour in a system essentially based on agriculture and retail trade, and at a very early age they come to exercise domestic and financial responsibilities of their own, through their own small-scale trading activities.

These responsibilities grow as the girl grows older, until they come to occupy all her time.

In the countryside, farming, stockbreeding and trade are more concrete, and more immediately profitable, forms of upward social mobility than study, which is irregular, costly, and offers no certain outcome and does not necessarily guarantee paid employment.

Girls often come from big, low-income, families, and their productive contribution can be a welcome addition to the group's means of subsistence; girls thus learn early to look after themselves and to play their part in the work of the household.

Seen thus, going to school means less income for the parents, and all too often the material investment they make in schooling is wasted due to early drop-out from school.

Inequality of access to school between the sexes is an important aspect of the problem, for analysis of school wastage in terms of this criterion is all the more significant in view of the fact that the girl's life is finally decided at puberty.

Female school wastage occurs in two main ways: (i) repeating; dropping out.

The fact is, the number of girls in school drops at each major crossroads in the school system: at the end of primary education, at the First Form in the secondary school, and in the Third Form in the General Intermediate School. This wastage through large numbers of girls repeating or dropping out is largely due to factors such as:

- late enrolment in school: most girls start going to school at between 7 and 9, approximately, in the country areas, where no civil records are kept;
- parents' material inability to shoulder all the expenses incurred in sending children to school;
- unwanted pregnancies and inadequate social organization;
- lack of parental motivation; parents often illiterate;
- increasing difficulty of finding paid work with a primary certificate;
- change of intellectual and linguistic environment.

For the country as a whole, one girl attends school for every two boys in the towns, one for three in the rural south, and one for four in the rural north.

It should also be borne in mind that the teaching language is a language utterly foreign to Benin, although Benin is a multilingual state as it is.

On arrival in school, pupils, and girls especially, are confronted with a complete change of intellectual and linguistic environment. Thus, acculturation is a general aspect of differentiation between regional milieux, but it is also a fundamental factor in any analysis of patterns of individual adjustment to new social circumstances.

The fact that all teaching in the school system is carried out in a foreign language means that children are handicapped right from the start of their school career. The fact that it is learned relatively late in life hampers the pupil's progress in school, although this phenomenon varies according to the child's background, rural or urban.

II. THE NEW SCHOOL AND POLICY TO REDUCE INEQUALITY

The development of education in Benin is directed towards the implementation of a general reform aimed at carrying out far-reaching changes in the entire education system.

The chief aims are to ensure equality in all domains: access, treatment to integrate the school into its environment, and to develop the individual's sense of responsibility.

The principles governing the organization of education concern the integration of the formal and nonformal systems, lifelong education, the acquisition of vocational qualifications, and active participation of the local population in the life of the school, so that the school becomes a unit of production.

With a view to fostering greater autonomy and gradually transforming the system, the Military Revolutionary Government has taken several social, economic and political measures:

- the abolition of allowances to public sector officials, the money saved being paid into a special educational fund known as the "Special account - New School", and used to finance many of the initiatives being taken in this sphere;
- the institution of compulsory patriotic service for all students at the University of Benin on completion of their first degree. These students are obliged to spend a year teaching in an Intermediate General school, thus remedying the shortage of teachers in these schools.
- the setting-up of a corps of Young Revolutionary Teachers to serve in primary education. These are recruited after obtaining their Elementary Certificate (B. E. P. C.) and teach for two consecutive years before going to attend an accelerated one-year course at one of the provincial teacher-training colleges. Their low pay (equivalent to half the salary of a qualified teacher) makes for substantial savings in the education budget and makes up for the shortage of teachers. These new teachers have made it possible to open schools in many poor and often highly inaccessible rural districts, especially in the north. They have made possible theprovision of school meals in the poorest areas, and the founding of boarding schools, permitting improved supervision and attendance.

These measures have permitted substantial savings since 1975, contributing to the cutting of current expenditure on education as well as enabling the government to cope with growing demand for education.

As a centre of development, the school is becoming increasingly integrated into the life of the surrounding community, thereby participating in the process of change. As a result, the school is no longer perceived as an intruder but as an endogenous element. Schooling is encouraged and its prestige enhanced so as to persuade parents and pupils to feel increasingly concerned.

Conventional examinations are gradually being abolished in favour of pupil participation in assessment and guidance. Other measures have also been taken to this end.

The growing devolution of central administration is bringing the different regional development organizations and institutions closer to their users. For example, the country has been divided into six major provinces, which act as development and planning units. To this end, education is rightly regarded as a regional training and development structure. With the aim of promoting equality, infrastructures have been placed in the hands of provincial education authorities, which are in turn divided into District education authorities.

While the solution to regional inequalities lies in a different kind of distribution of education supply, the basic territorial unit on the school map is the commune. This appears to provide the most flexible framework for achievement of the objectives laid down by the educational reform now in progress.

In the light of this improvement in the system and its end-product, aimed at transforming the local economy, it is becoming increasinly clear that the true agents of development, the products of the "New School", will not be fully operational for a short while yet. When they are, the socio-economic objectives laid down by the Reform call for a variety of supporting measures under the

responsibility of other ministries, including: (i) technical training; (ii) youth, folk culture and sport; (iii) health; (iv) rural development and co-operative action.

The far-reaching changes that have been made in school curricula and teaching methods, and the use made of the products of the revolutionized school system in the political context of this country, will serve to ensure that increasing numbers of children and adolescents complete their respective school programmes.

Since 1975, modifications have chiefly been concerned with remodelling school curricula with a view to reducing the length of primary schooling from 6 years to 5, and to adapting course content to actual conditions.

Beyond the geographical equality of supply, a transformation of the school in terms of syllabus and length of schooling should contribute to a marked reduction of inequalities.

The central focus of the reform is the output of the school: by establishing a direct link between knowledge and its environment the value of such knowledge is enhanced; thus armed, school-leavers can return to their community and put their knowledge at the service of the rural population for the purpose of rationalizing production methods. This serves to boost confidence in the school on the part of the rural population, observing the school's efforts to integrate into its surroundings and the environment in order to improve traditional techniques. Each establishment is run by its own School Board, made up of representatives of the local authorities, teachers, parents and pupils; the Board helps reinforce school-environment interaction and further bolsters the local population's confidence in the school.

The linkage of education and production is designed to make education functional and to adapt it to national needs. All schools have their own school production units, run by school co-operatives. The school year has been modified to harmonize with the farm seasons, thereby freeing pupils for farmwork.

In these conditions the school becomes an integral part of its social environment. According to this objective, the school is one of the driving forces behind the development of society in the People's Republic of Benin.

Schooling and inequality in pre-revolutionary Ethiopia[1]

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INTRODUCTION

In the past, the naïve observer could not but be impressed that Ethiopia offered free education to its youth up to the university level. In many cases the students were also furnished with small stipends to cover their living expenses (Abir, 1970). However, a closer examination of the educational profile of the Ethiopian population before the revolution reveals that it was characterized by a low attendance rate of school-age children, and that inequality of educational opportunity existed between the sexes. The attrition rate was very high and unemployment among high-school graduates was quite conspicuous. The purpose of this study is therefore to highlight the inequality of educational opportunity that existed in pre-revolutionary Ethiopia. In this study, the term "equal educational opportunity" will be confined to access to the formal educational system, progress within the system, quality of educational service, and success in gaining admission to high schools and the university, and in finding employment.

Before we discuss access, progress, quality of educational service received and the success of school-age children in prerevolutionary Ethiopia, a brief clarification of the differences between the socialist view of equal education and the liberal view of equal educational opportunity, and a discussion of why I opted for the latter approach in my assessment of the educational system in pre-revolutionary Ethiopia, are worthwhile.

II. THE SOCIALIST VIEW OF EQUAL EDUCATION

To a socialist, education is one of the basic necessities of life which all people should enjoy in order to become well-rounded and fully developed human beings. The importance of education, as stated by Karl Marx, is "to produce fully developed individuals fit for a variety of labours - to whom the different social functions are but so many modes of giving free scope to their own natural powers" (1904:233). The kind of education generally advocated by socialists is based on the Marxian principle that what is needed is:

> "Education that will, in the case of every child over a given age, combine productive labors with instruction and gymnastics not only as one of the methods of adding to the efficiency of production, but as the only method of producing fully developed human beings (Marx as quoted in Price, 1970: 27)."

The socialist interpretation of all-round development is that students should acquire broad knowledge and become versatile people capable of going in sequence from one branch of production to another, depending on the requirements of society or on their own inclinations. The essence of all-round

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[1] Data collected by the Ministry of Education in 1972 on "the distribution of educational opportunity in Ethiopia" and Levin's work on "Educational Opportunity and Social Inequality in Western Europe" were very useful in establishing parameters for the study. The author is grateful to Priscilla Hopkins for a critical reading and suggestions.

development is also that the knowledge imparted to the students must not be one-sided and fragmentary, but complete knowledge (Lu Ting-Yi, 1962: 117-118). Hence, all-round development to a socialist means a complete knowledge that integrates mental with manual labour. Academic subjects can be integrated with productive labour when schools set up their own factories and farms, and when factories and agricultural co-operatives establish their own schools (Lu Ting-Yi, 1962:124).

To a socialist, equal education also means the avoidance of creating a few highly trained elites, because the elitest concept "creates a dominance-dependency relationship between the elites and masses, sharpens class lines and in effect creates a new ruling class" (Seybolt, 1973: xxii). The success of an individual is measured not by academic examination results but through co-operative learning and helping one another to come to the same level. For example, if a child goes to school and leaves because he or she cannot do the work, the system has failed by socialist standards.

In summary, equal education to a socialist is a means of raising all the people in the political system to the same level (of course this is a long-range goal) by integrating academic subjects and work in actual life situations. Learning also "emphasizes co-operative endeavours rather than individual advancement" (Nyerere, 1968: 52).

III. THE LIBERAL VIEW OF EQUAL EDUCATIONAL OPPORTUNITY

To a liberal, education is regarded as "social justice, it is part of and helps establish the equality of opportunity so necessary to the assaults on special privilege. Schooling is a social service which the state is responsible to provide on an equal basis for all citizens" (Prewitt, 1972: 91-92). Education is also taken as one of the welfare items that all people should receive "not only as an end in itself but a means to other equality related ends" (Abernethy, 1969: 8). To a liberal, the idea of education as a welfare item does not, however, represent a quest for economic and political power but is used as a device for providing equal opportunities for youngsters from diverse circumstances to start on the same level, from which some would go farther than others depending on their ability. As Levin puts it: "Differences in ability, effort, luck and preferences could create differences in outcomes among the individuals, but the common school would assume that representative individuals born into any social class would have an opportunity to achieve status as persons born into other social classes. That is, the opportunities for achieving life success for a son would not be determined by his father's achievements but by his own (1972: 1-2)."

The liberal view of equal educational opportunity implies that the same type of educational facilities should be made available on equal terms to all socio-economic classes. No clear-cut presumption states that the outcome will be equal among social groups, but loosely-held belief indicates that if money or social class were not a formal barrier to entry into various types and stages of education, lower and middle classes would get about as much out of the schooling system as those in the upper classes, and any gap remaining could not be a serious source of complaint. (Ribich, 1972: 124). Hence, to a liberal, equal educational opportunity means that schools should be made available on equal terms to all socio-economic classes, and if an individual fails in the school system, it is not society's fault but his own.

Before the present military government declared itself socialist on December 20, 1974, the dominant economic system in Ethiopia was feudal, complemented by some capitalistic elements. Consistent with the economic system, the educational goals of pre-revolutionary Ethiopia as stated in the country's development plans were to provide equal educational opportunity for an increasing number of people, and in particular for school-age children (see for example, the 3rd Five Year Development Plan, 1968-1973: 295). This study will, therefore, use the liberal view of equal educational opportunity in assessing the schooling system in pre-revolutionary Ethiopia.

IV. ACCESS TO THE EDUCATIONAL SYSTEM

The indicators used to assess the access of school-age children to the educational system in pre-revolutionary Ethiopia were: (a) the participation rate of school-age children, (b) rural and urban participation rates, and (c) the participation rates of the sexes.

Inequality in the participation rate of school-age children

Over the period from 1963 to 1973/74 school enrolment in pre-revolutionary Ethiopian primary and secondary schools had expanded slowly. When compared with the 1963/64 enrolment figure, by 1973/74 enrolment at the primary level had almost doubled, quadrupled at the junior-secondary level and increased about six times at the senior-secondary level. In both primary and secondary schools student enrolment had been increasing at the annual rates of 15 per cent, 15.4 per cent, 12.2 per cent, 9.6 per cent and 7.7 per cent in 1968/69, 1969/70, 1970/71, 1971/72, 1972/73 respectively. However, the provincial distribution of primary-school enrolment in 1972 reveals important deviations from equality (see Table 1).

Most notably Addis Ababa, with 132,800 school children, had 70 per cent of the enrolment. Nine provinces - Bale, Begemdir, Gemu Gofa, Gojjam, Hararge, Kefa, Sidamo, Tigrai, and Wello were below the national average, (i.e., 16 per cent). The educational provinces which had a participation rate equal to or higher than the national average were Arusi, Eritrea, Illubabor, Shoa, Wellega and Addis Ababa.

At the Awraja (district) level there were great discrepancies in educational opportunity. Of the total of one hundred and two districts, sixty-four had average participation rates below the

Table 1. Provincial distribution of school enrolment

Province	Number of School Age Children	Enrolment	Participation Rate
1. Arusi	134,600	30,746	22.8
2. Bale	164,000	12,046	7.3
3. Begemdir	213,400	29,584	13.8
4. Eritrea	303,400	88,292	29.1
5. Gemu Gofa	110,400	12,734	11.5
6. Gojjam	375,200	29,225	10.6
7. Hararge	529,100	39,445	7.4
8. Illubabor	109,400	20,743	18.9
9. Kefa	203,000	20,607	10.1
10. Shoa	702,200	109,393	15.5
11. Sidamo	391,000	40,778	10.4
12. Tigrai	268,300	30,077	10.4
13. Wellega	200,400	66,979	33.4
14. Wello	388,800	31,326	8.0
15. Addis Ababa	132,800	92,849	69.9
Total	4,146,000	654,824	15.7

Source: Compiled from Ministry of Education: Report to the Education Sector Review, 1972

national average. In some districts there were few traces of school facilities of any type, but others had enrolment rates as high as 28 per cent of school-age children (Ministry of Education, 1972: 134).

At the Wereda (sub-district) level, 44 out of 518 sub-districts were without government schools: 36 of these 44 sub-districts were located in the provinces of Hararge, Tigrai, and Sidamo. Moreover, some of the government primary schools were incomplete; that is, they did not have all grades from one to six. This meant that even those who were fortunate enough to obtain a place in the system were not able to complete their primary education (see Ministry of Education, 1972).

In 1970/71, thirty-five per cent or, that is, 417 out of the 1,190 of primary schools in the country were incomplete. These incomplete schools were located mainly in the rural areas (Ministry of Education, 1972).

Data on provincial distribution of secondary education indicates that even though Addis Ababa, Eritrea, Shoa, and Hararge contained only 40 per cent of the school-age children, 62 per cent of the student population in junior- and senior-secondary schools was found in those provinces. The provinces of Bale, Gemu Gofa, and Illubabor had the smallest enrolments.

In 1972, of the sixty-one secondary schools, thirteen were in Addis Ababa. Ten were in the province of Shoa, seven were in Eritrea and five in Hararge province. Five were in Tigrai province.

The distribution of non-government secondary schools more or less followed the same pattern. Twenty-two were located in Addis Ababa, ten in Eritrea, seven in Shoa, and six in Wellega (see School Census, 1972-73: 91).

Disparity between rural-urban enrolments

In pre-revolutionary Ethiopia the educational system was urban-biased. Almost all schools were largely concentrated in narrow belts adjacent to the main roads, mainly in urban areas, while rural areas were sparsely covered. As stated by Markakis, the school facilities in the urban areas were predominantly utilized by the sons and daughters of merchants and civil servants. These groups took advantage of the limited educational system because the schools were mainly located in urban areas; and unlike peasant households, their parents were able to support them financially while they were at school (1973: 378). However, it is worth stressing that there was unequal distribution of primary schools among towns. For example, the participation rate of school-age children in Addis Ababa was 53 per cent, whereas in some provincial towns it was less than 10 per cent.

A study conducted by the Ministry of Education in seventy-two towns indicated that in the provincial towns school enrolment ranged from as high as 47 per cent in Tigrai to as low as 10 per cent in Illubabor (see Ministry of Education, 1972: 135). This is a clear indication that even among the provincial towns there was a high concentration of primary schools in some towns, while other towns had very few primary schools.

Low participation of females

In the pre-revolutionary Ethiopian educational system girls were under-represented. In 1960/61 about 23 per cent of the students in all schools were girls. However, in 1970/71 girls contributed about 31 per cent of the student enrolment in primary schools. The average enrolment of girls in secondary schools was 23 per cent. However, there was under-representation of girls in the provinces. For example, in 1970/71 the enrolment of girls in Addis Ababa was 35 per cent. In Eritrea the rate was 14 per cent, and in Shoa about 11 per cent of the girls were in school. Bale, Illubabor, and Gemu Gofa had less than 1 per cent of the girls in their schools (see Ministry of Education, 1972: 135).

V. PROGRESS WITHIN THE EDUCATIONAL SYSTEM

The major indicator used in assessing student's progress within the educational system was the attrition rate. The attrition rate in pre-revolutionary Ethiopian educational system is described below.

The pre-revolutionary Ethiopian educational system suffered from a severe rate of attrition. About half of the students who entered the first grade of primary school dropped out before reaching grade five. When we compare the drop-out rate in Ethiopia with that in Kenya, Tanzania, and the Sudan (using the 1968 age cohort), Ethiopia had the highest drop-out rate of the four countries. The drop-out rate in 1972 was 51 per cent, followed by Tanzania with 38 per cent (see Unesco, November, 1975).

The drop-out rate in pre-revolutionary Ethiopian government schools shows that of the 103,753 students who were in public schools in grade one in 1967/68, seventy-one per cent were in grade two in 1968/69, sixty-seven per cent were in grade three, 65 per cent were in grade four, and 58 per cent were in grade five in 1971/72 (see Table 2).

As shown in Table 2, the incidence of drop-out was higher among boys than among girls. Of those 29,884 girls who entered grade one in 1967/68, sixty-two per cent reached grade five in 1971/72, whereas only 57 per cent of the boys reached grade five by the same year.

Table 2. Drop-out rates and tap-offs in Government primary schools 1967/68 - 1971/72

Year	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
1967/68	M 73,868 F 29,884 T 103,753				
1968/69		M 51,926 F 21,428 T 73,354 % 70.7			
1969/70			M 48,774 F 20,447 T 69,221 % 66.7		
1970/71				M 46,967 F 20,478 T 67,445 % 65.0	
1971/72					M 42,095 F 18,403 T 60,498 % 58.3
% Drop Outs		29.3	33.3	35.0	41.7

Source: Compiled from School Census 1969/70 - 1972/73, p. 21.

The opposite picture is observed in secondary schools. As shown in Table 3, of those who were enrolled in grade nine in 1969/70, fifty-seven per cent reached grade twelve in 1972/73. However, of those girls who were enrolled in grade nine in 1969/70, only 48 per cent were in grade twelve in 1972/73.

Table 3. Drop out rates and tapoffs in government senior secondary schools 1969/70-1972/73.

Year	Grade 9	Grade 10	Grade 11	Grade 12
1969/70	M 12,695 F 3,139 T 15,834			
1970/71		M 11,339 F 2,898 T 14,237 % 89.9		
1971/72			M 9,726 F 2,300 T 12,026 % 75.9	
1972/73				M 7,465 F 1,521 T 8,986 % 56.7
% Drop Outs		10.1	21.1	43.3

Source: Compiled from School Census 1969/70 - 1972/32, Part I.

From these two tables, we can conclude that the rate of attrition in both primary and secondary schools was quite high when we consider that only 16 per cent of the school-age children were in primary schools and 4.5 per cent of the school-age population were in secondary schools in 1972. Furthermore, it is possible to say that in pre-revolutionary Ethiopia, the elementary educational system had failed to give a minimum primary education, as far as those who drop out were concerned.

VI. QUALITY OF EDUCATIONAL SERVICE

Quality of educational service in pre-revolutionary Ethiopia is discussed under three headings - teacher's educational qualifications, pupil-teacher ratio, and the educational budget.

Maldistribution of qualified teachers: Perhaps the most important component of educational quality received by students could be embedded in the educational qualification of the faculty members. In general the distribution of faculty members in pre-revolutionary Ethiopia mirrored the maldistribution of educational facilities in the country. In 1971/72 about 44 per cent of the teachers in primary schools were located in Addis Ababa, Eritrea, Hararge and Shoa. The rest (about 55 per cent) were in the other eleven educational provinces. About 48 per cent of the junior-secondary school teachers were found in Addis Ababa, Eritrea and Shoa. About 57 per cent of the senior-secondary school teachers were found in Addis Ababa, Eritrea and Shoa. Compounding this general maldistribution of students was the similar maldistribution of the highly qualified teachers. Addis Ababa had 31.3 per cent of the highly qualified teachers with university education, followed by Shoa, 14.6 per cent and Eritrea, 11.2 per cent (see Table 4). Moreover, the highly qualified teachers were mostly foreigners and the number of Ethiopian faculty members increased on the average by less than 1 per cent a year from 1969/70 to 1972/73 (School Census, 1960/70-1972/73).

Table 4. Educational qualifications of foreign and Ethiopian teachers in government schools, 1971/72

Province	School	1st, 2nd Levels and Voc-Tech Education (%)	Teacher Training Graduates (%)	Higher Educ (%)	Total (%)
1. Addis Ababa	Primary	14.2	9.9	14.7	11.1
	Junior Sec.	19.4	17.7	19.6	18.7
	Senior Sec.	30.5	18.4	31.3	30.4
2. Arusi	Primary	2.9	4.8	5.0	4.4
	Junior Sec.	4.9	3.8	4.1	4.1
	Senior Sec.	2.7	4.2	3.2	3.2
3. Bale	Primary	1.6	3.1	5.4	2.9
	Junior Sec.	2.0	0.0	3.3	1.6
	Senior Sec.	-	-	0.9	0.7
4. Begemdir	Primary	5.0	6.6	6.8	6.3
	Junior Sec.	4.6	2.9	5.4	4.1
	Senior Sec.	-	10.9	3.5	3.5
5. Eritrea	Primary	16.4	7.5	13.8	9.8
	Junior Sec.	20.6	16.9	9.4	14.7
	Senior Sec.	26.4	20.1	11.2	13.6
6. Gemu Gofa	Primary	1.9	3.9	3.3	3.4
	Junior Sec.	0.8	1.9	3.2	2.2
	Senior Sec.	3.1	-	1.5	1.6
7. Gojjam	Primary	5.0	7.1	8.7	6.7
	Junior Sec.	3.7	3.5	6.6	4.7
	Senior Sec.	4.5	1.6	6.0	4.4
8. Hararge	Primary	6.2	8.0	4.6	7.4
	Junior Sec.	6.9	4.5	6.4	5.6
	Senior Sec.	5.0	0.8	7.5	6.7
9. Illubabar	Primary	3.4	4.1	4.8	4.0
	Junior Sec.	5.8	1.7	2.2	2.6
	Senior Sec.	-	1.6	0.8	0.7
10. Kefa	Primary	2.0	4.7	3.8	4.1
	Junior Sec.	1.4	4.5	3.3	3.5
	Senior Sec.	0.9	9.2	2.1	2.4
11. Shoa	Primary	20.9	14.0	15.7	15.6
	Junior Sec.	6.6	14.6	17.9	14.5
	Senior Sec.	2.2	10.0	14.6	12.9
12. Sidamo	Primary	4.8	6.5	2.5	5.9
	Junior Sec.	7.8	7.9	3.7	6.4
	Senior Sec.	6.8	6.7	4.3	4.7
13. Tigrai	Primary	2.6	6.6	3.1	5.5
	Junior Sec.	4.6	5.4	4.5	4.9
	Senior Sec.	6.8	3.3	5.1	5.2
14. Wellega	Primary	3.6	6.0	3.8	5.4
	Junior Sec.	1.7	5.3	4.6	4.4
	Senior Sec.	4.5	3.3	3.9	4.0
15. Wello	Primary	8.5	6.4	3.3	6.7
	Junior Sec.	8.4	8.5	4.9	7.1
	Senior Sec.	5.9	9.2	4.7	5.1

Source Compiled From School Census, 1969/70 - 1972/73, Part I

Excessive number of students per teacher: It is assumed by most educators that classrooms with fewer students are more conducive to learning and teaching. An analysis of pupil/teacher ratios in pre-revolutionary Ethiopia indicates that, except in private and mission schools which were predominantly reserved for the sons and daughters of the salaried civil servants and the rich merchants, almost all government schools were overcrowded. Even Addis and Eritrea, with the highest per pupil expenditure, had a very high ratio, 1 teacher to 86 and 97 pupils, respectively. The national average in 1972 was 72-84; however, provinces with the lowest participation rate such as Bale, Gemu Gofa and Gojjam had the lowest pupil/teacher ratio of 47, 41 and 47 respectively.

VII. INADEQUATE EDUCATION BUDGET

The education budget of a country is the educational programme translated into fiscal terms. Hence, the budget allocated to education can indicate how much priority is given to the schooling process in a country.

In Ethiopia, the financial expenditure on education between the years of 1957/58 and 1972/73 continued to fluctuate between 9.1 and 17.2 per cent, on the average for national defense and security. What is worse, the Ministry of Education never completely received the approved budget amounts. As stated by Mulugeta:

> "On the average the Ministry of Education forfeits approximately Eth. $2 million simply because it cannot get the money in time to spend it. As funds for recurrent expenditure are not transferable from year to year, the Ministry of Education loses all funds that were not transferred to the account of the central and provincial treasurers before the end of the financial year. Such a set-up encourages delays and in fact, it is said that provincial treasurers (Bejuronds) are sometimes evaluated on the basis of the amount of money "saved" for the Government through all sorts of delaying habits. (1967 : 22)"

Given these constraints, Ethiopia's per capita expenditure for education was the lowest in East Africa. At the primary level, the per pupil expenditure in 1972 was US$25; at the secondary level, it was US$82 per head. When compared with Kenya and Tanzania, Ethiopia spent the least for education. In absolute terms, Ethiopia spent US$ 56 million for education during the 1970/71 school year. Tanzania spent US$ 81 million. Kenya spent US$ 136 million. On a per capita basis, Ethiopia spent US$ 2.20 per inhabitant. Tanzania and Kenya spent US$ 6.00 and US$ 11.80 per inhabitant respectively. As a percentage of GDP, Ethiopia spent the least for education and Kenya the most of the three countries. Ethiopia's expenditure for education as a fraction of GDP comes to 3.4 per cent, Tanzania spent 6.9 per cent of her GDP, and Kenya's expenditure was about 8.9 per cent of GDP (ter Weele, 1973). What is surprising is that even though a limited portion of the national budget was allocated to education a large proportion of the recurrent educational budget was spent on salaries for educational personnel and students who drop out before completing elementary schools. For instance, as stated by the World Bank, "From 1965/66 to 1968/69, while the total salary bill increased by 222 per cent in primary education and by 170 per cent in secondary education, recurrent costs other than for personnel grew only 10 per cent in secondary education and actually decreased by 56 per cent in primary education. The deterioration of cost patterns is reflected in the lowered quality of instruction, and in the almost complete lack of maintenance and upkeep of buildings and equipment". (1970: 12). The budget was also unequally distributed among the provinces. Forty-one per cent of the expenditure went to the two provinces of Shoa and Eritrea although the two provinces had only 25 per cent of the total school-age population in the country (Ministry of Education, 1972 : 137).

VIII. EDUCATIONAL SUCCESS

Educational success in pre-revolutionary Ethiopia was assessed in terms of equality of educational effects on life chances for further schooling (that is, admission to high schools and the university) and occupational attainment (Levin, 1976).

Failures in the National Examination: As shown above, owing to high drop-out rates in primary and secondary schools, only a limited number of students sat for the National Examinations given at the end of grades six, eight, and twelve.

Results of the Grade Six National Examination indicated that of those who sat for the Grade Six Examination in 1972/73 only 54 per cent (i.e., 48,595/90,710) passed. However, of that 54 per cent, 39 per cent were from Addis Ababa, 33 per cent were from Shoa, and 22 per cent were from Eritrea. The provinces of Bale, Gemu Gofa, and Illubabor had less than 5 per cent of the National passes. Similarly, results of the Grade Eight National Examination show that of those who sat for this examination in 1972/73 only 51 per cent (i.e., 25,923/50,179) passed. Of those, 26 per cent were from Addis Ababa, 15 per cent were from Shoa, and 13 per cent were from Eritrea province. Bale, Gemu Gofa, and Illubabor constituted only 4 per cent.

Results of the Grade Twelve National Examination show that in 1972/73 of those who sat for the National Examination only 22 per cent (i.e., 1,614/7,179) successfully passed. However, of those who passed the National Examination, 53 per cent were from Addis Ababa, 9 per cent were from Shoa, and 7 per cent were from Hararge. Bale, Gemu Gofa, Illubabor constituted less than 1.3 per cent (see Table 5). Moreover, data for the previous years indicate that there was mass failure of students in the Ethiopian School Leaving Certificate Examination. For instance, in each of the academic years, 1965 to 1971, the percentage of student failure was 87, 87, 78, 73, 81, 82, and 81, respectively (see for example, School Census, 1965-73; Teshome, 1971).

Unemployment among secondary-school graduates: From 1942 to the early sixties, the students who graduated from Ethiopian high schools were automatically absorbed into the administrative machinery of the state. With such employment conditions graduates were offered elite

Table 5. National examination results 1972/73 grades six, eight, and twelve.

Province	Grade Six No. Passed	Grade Six % Passed	Grade Eight No. Passed	Grade Eight % Passed	Grade Twelve No. Passed	Grade Twelve % Passed
1. Addis Ababa	10,392	21.3	6,633	25.6	855	52.9
2. Arussi	1,832	3.4	899	3.5	55	3.4
3. Bale	640	1.3	333	1.3	13	.8
4. Begemdir	2,102	4.3	1,324	5.1	71	4.4
5. Eritrea	5,653	11.6	3,280	12.7	23	1.4
6. Gemu Gofa	825	1.7	412	1.6	5	.3
7. Gojjam	2,294	4.7	1,137	4.4	40	2.5
8. Hararge	2,915	6.0	1,554	6.0	118	7.3
9. Illubabor	865	1.8	383	1.5	4	.2
10. Kefa	1,248	2.6	756	2.9	39	2.4
11. Shewa	8,528	17.5	3,884	15.0	144	8.9
12. Sidamo	3,514	7.2	1,461	5.6	58	3.6
13. Tigrai	2,225	4.6	1,269	4.9	87	5.4
14. Wellega	3,085	6.3	1,299	5.0	36	2.2
15. Wello	2,477	5.1	1,309	5.0	66	4.1
Total	48,595	100	25,923	100	1,614	100

Source: Compiled From School Census, 1969/70 - 1972/73, Part I.

status and high salaries, and enjoyed a relatively high standard of living. For instance, in the 1960s the starting salary for a high school graduate was Eth. $200 per month. However, the estimated per capita income in the country was Eth. $143 per annum. To some extent government offices used educational qualification as a means of recruiting personnel. In fact, according to rules of the Ethiopian Government Personnel Agency, entry into the wage sector was almost entirely dependent on the amount of schooling completed. No advertisement of a government job opening was without stipulation as to the minimum schooling necessary for the applicant. Thus high-school graduates had two choices, either to go to the university or to work for a while in order to earn wages.

Starting in the late 1960s, though less than 4.5 per cent of the school-age population was in Ethiopian secondary schools, the number of secondary-school graduates from both government and non-government secondary schools doubled from 4,751 in 1969/70 to 8,055 in 1972/73. On the other hand, the rate of economic growth of GDP declined from 4.8 per cent in 1963-68 to 3.6 per cent in 1968-73. Agriculture, which is the mainstay of the economy, grew at the rate of 2.1 per cent per annum over the last ten years (see for example, Blaug, 1973). Thus, due to the tight economic situation the country was facing for the years 1963-73 and to the fact that the government which used to be the major employer of high-school graduates seemed to have reached the saturation point, many high-school leavers began to experience increasing difficulty in obtaining employment commensurate with the credentials they held. Moreover, the graduates were not able to get employment with the private sectors of the economy because the investors were heavily dependent on capital-intensive and labour-displacing technology.

Starting in 1961 with assistance from U.S.A.I.D. and I.D.A. loans, many academic secondary schools were converted into comprehensive secondary schools with the sole aim that graduates from these schools be employed locally. However, available evidence indicates that graduates from these schools have not been able to secure jobs within their immediate localities. For instance, when the first group of some 41 commercial and industrial arts students graduated from the Woizero Sihen Comprehensive Secondary School in Dessie in 1964, not one found employment in Dessie. In another provincial school out of the 106 commercial and 120 industrial arts students who graduated from 1965 to 1971, only seven were employed locally (see Gareau, 1971). This is a clear indication that the comprehensive school movement of the 1960s did not contribute to student employment as expected. Moreover, there is little evidence that these schools had created employment opportunities for the graduating students in the capital city. The examples presented below show that secondary schools were producing more credentialled unemployed graduates on the labour market.

In 1968, out of 937 graduates from training institutions, about 354 were employed by both the government and private organizations and the remaining 583 were actively looking for jobs. In 1971, over 2,400 persons who had educational qualifications above elementary level were registered as unemployed with the Addis Ababa Employment Office. These included more than 245 comprehensive secondary-level graduates. On the other hand, fifty per cent (i.e., 2,101) of all foreign work-permit holders in the country had secondary or less schooling (See Blaug, 1973).

Taking those who were registered with the Addis Ababa Employment Office, Blaug shows that in 1973 about 16 per cent from vocational and academic streams of secondary schools were actively looking for jobs (1973: 65, 66). Blaug's estimate does not cover the whole picture. First, it does not take into account those registered with the employment offices in Asmara and Dire Dawa. Second, it does not include high-school graduates who were not registered with the employment offices.

As mentioned earlier, in 1972/73, out of 8,055 grade-twelve students who sat for the Ethiopian School Leaving Certificate Examination, only 23 per cent were qualified to enter the university. Given the fact that about 77 per cent of the students had failed the E.S.L.C. Examination, based on experience, we can roughly estimate on the basis of existing trends that 4,000 of the remaining 77 per cent could get jobs, or join the teacher-training institutes, other training institutes (nursing, telecommunication, etc.), and non-degree institutions (i.e., junior colleges). Thus, around 25 per cent of the high-school graduates in 1974 were unemployed. Moreover, given the fact that some school-leavers from previous years were unemployed and were actively seeking jobs in 1974, we can say that in the Ethiopian economy the supply of manpower at the secondary level has outstripped demand, contributing to a high proportion of educated unemployed, resulting in a latent contradiction

on the economic base. Due to the lack of employment statistics by sector of economic activity and occupational skills, it is very difficult to assess the magnitude of unemployment among secondary-school graduates in pre-revolutionary Ethiopia. Moreover, even though employment offices existed in Addis Ababa, Asmara, and Dire Dawa, either because secondary-school leavers were not aware of the existence of such offices or because of communication problems, many of the secondary-school graduates actively seeking jobs did not register with the employment offices. However, the above cited evidence suggests that the incidence of actual unemployment among secondary-school graduates was a real problem in pre-revolutionary Ethiopia. It was a real problem for school-leavers who had failed the Twelfth Grade National Examination. After observing the unemployed high-school graduates who went before them, students who were enrolled in school had come to doubt the widely-held myth that schooling in Ethiopian society would lead to future employment and social mobility. As Levine has pointed out: "the rapid filling of jobs by the educated youth and steadily growing numb ers of unemployed youth began to create anxieties about finding work in the future" (1965: 146).

Moreover, it could be argued that since the construction of the comprehensive secondary schools was expensive because construction of the classrooms had to meet international specifications at a cost a number of times higher than that of classrooms built to some suitable local standard, they left the country dependent on foreign assistance and loans. For instance, foreign sources provided 28 per cent of the financial input to education in Ethiopia, compared with 10 per cent in the case of Kenya and three per cent in the case of Tanzania (see ter Weele, 1973).

In summary, education in pre-revolutionary Ethiopia as assessed by the liberal view of educational opportunity indicates that it was characterized by: 1) low participation rate of primary- and secondary-school-age children, that is, only 16 per cent of the primary-school-age children and 4.5 per cent of the secondary-school-age children were in schools, 2) disparity in educational opportunity between the different regions, between the sexes and between rural and urban areas, 3) a high drop-out rate in both elementary and secondary schools, 4) a high pupil/teacher ratio and inadequate operational budget, 5) a high rate of unemployment among high-school graduates owing to the slow growth rate of the economy, 6) elitist and irrelevant courses offered at the university level (for instance, in 1965, 1970 and 1971; student enrolment in the natural sciences as a percentage of the total enrolment in the university was 36.9, 31.2, and 27.6, respectively).

Finally, as nicely put by one educator, the educational system in pre-revolutionary Ethiopia had not only "opened its door to some sections of the population and closed its doors to others and had left many unaware that such doors existed", but also it reflected the country's dependence on foreign aid and reproduced the class structure. The few sons and daughters of the working class and the peasantry who managed to go to schools attended second-rate public institutions. The upper group sent their children to elite-status private schools or abroad to Europe and North America.

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Educational inequalities between rural and urban areas

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I. PRE-PRIMARY SCHOOLS

The provision of educational facilities at pre-primary level is, as a rule, very inadequate all over the country except in large cities, where it is a little better. For example, in Karnataka State with a population of about 22 millions there were only about 2,500 pre-primary schools, with an estimated enrolment of 150,000 children only in 1976/77. Those in the rural areas are run by the Government through the Department of Social Welfare, which has the responsibility of looking after the interests of the socially, educationally and economically backward classes, including mainly those that are generally called the "Untouchables" or those classified as Scheduled Castes and Scheduled Tribes. Although they do some educational work, the stress is on health, child care and nutrition. The persons in charge of these centres are not adequately qualified to discharge the responsibilities of a teacher of a pre-primary school. The supervisory staff is also similarly unqualified from an educational point of view. These institutions are entirely state-supported and they charge no fees. The Departments of Education are organisationally not connected with these institutions.

In addition to the above there are some pre-primary education centres called Balavadis in small towns and rural areas, under the management of State Social Welfare Advisory Boards, which are also state-supported and which are mainly concerned with the welfare of children and women. Here also the stress is mostly on health and child care but the teachers are given some training in pre-primary education as such and are somewhat better qualified.

A large number of pre-primary schools as such [they are called Montessori schools or kindergarten schools, nursery schools or Sisu Vihars (children's centres)] are located in towns and cities and are administered by municipalities or city corporations or private agencies. The former charge a small fee and also provide some free places. The latter charge higher fees and, if they are State-aided, provide a certain percentage of free places. Many of the best pre-primary schools charge very high fees and it is very difficult to get admission into some of the prestigious nursery schools. Although some of them are run on psychologically sound principles many of them are just downward extensions of primary schools. Furthermore, many of them employ English as the medium of instruction, for which there is an increasing demand. The facilities for pre-primary education in rural areas are not only inadequate but are also poor in quality compared to those in urban areas, from all points of view, such as accommodation, equipment and the competence of the teacher. Realizing this inequality the State Government of Karnataka has initiated a programme of establishing government nursery schools in rural areas. In the Sixth Five-Year Plan it is proposed to start 5,000 such schools at the rate of a 1,000 each year. The rural pre-primary education centres suffer also from the fact that women teachers, by and large, prefer to work in towns and cities where living conditions are better.

II. PRIMARY SCHOOLS

(a) Compulsory education

Although Article 45 of the Indian Constitution stipulates that "the State shall endeavour to provide, within a period of ten years from the commencement of this Constitution, for free and compulsory education for all children until they complete the age of fourteen years", no State in India has succeeded in providing free and compulsory education for all children up to the age of 14, even after a lapse of 28 years as against the 10 years mentioned in the Constitution. This lapse on the part of the Central and State Governments cannot be questioned in any court of law because Article 45 of the Constitution has been included in Part IV which includes the Directive Principles of State Policy which are not justiciable, as contrasted with the Funcamental Rights included in Part III which are enforceable in a Court of Law.

Some States have made some limited attempts to introduce free and compulsory education up to the age of 11 by enacting Compulsory Education Acts. For example, Karnataka has a Compulsory Primary Education Act enacted in 1961 covering children between the ages of 6 and 10. At present in Karnataka the provision of primary schools is quite adequate, since almost every village has a primary school within a walking distance of 1 to 1½ km. It must be remembered, however, that this is not the position in all States in India. There are many States where the provision of primary schools is far from adequate. However, even where the provision is adequate the implementation of the Act is far from satisfactory. A census of school-going children is taken every year in December and children who should be in school in May next are systematically listed and the teachers and the parents are informed as provided by the Act. An overwhelmingly large percentage of the enlisted children do enrol themselves as pupils in schools in the month of May. But what happens afterwards is a tragic story. Many of them attend school only for a few days and then stop away altogether. Nothing is done, by and large, to see that they attend school regularly. The percentage of drop-outs and those who repeat in the same class year after year is colossal in primary schools. The following figures of enrolment show the amount of wastage and repetition in a rough way:

Enrolment figures in Karnataka by standard in 1977/78

Standard I ..	1,330,000	Standard V ..	400,000
Standard II ..	900,000	Standard VI ..	330,000
Standard III ..	900,000	Standard VII ..	320,000
Standard IV ..	530,000		

It is a well-known fact that this wastage is very much more in rural areas than in urban areas and more in the case of girls than in the case of boys.

Various attempts have been made to combat the problem of this huge wastage on account of the twin causes of drop-outs and repetition. Since the causes are social and economical rather than educational the Governments have come to the conclusion that compulsion based on legal sanctions is not only not going to succeed but also not desirable at this stage of development in our country. And so we are concentrating on incentive schemes to attract children to schools and to retain them in schools as long as possible. Among such schemes are the provision of free mid-day lunches organised with the assistance of the CARE organisation, free distribution of books and slates to poor students, free distribution of clothes to girls based on progress and attendance. Side by side with this programme we have initiated a scheme of establishing more and more pre-primary schools with the hope that children who go to a pre-primary school will continue their education at the primary level also. Many programmes of adult education have been in existence for more than 30 years and a National Adult Education Programme has been launched from October 1978 with the object of liquidating illiteracy in the age-group 15 to 35 during the next 5 years. As a by-product of this programme it is hoped that adults who become literate would more readily send their children to schools.

One of the measures contemplated is the introduction of nonformal education for all children who have not gone to a school at all or those who have dropped out. Other measures that are being considered are changes in the working hours to suit rural conditions and change in the system of vacations to suit rural agricultural operations. A system of multiple-point entry, instead of entry at Standard I level uniformly and promotion to the next Standard based not on an annual examination

but on periodic assessment and evaluation, has been proposed to reduce drop-outs and repetition. The Government of India has just taken up a Project for Universalization of Elementary Education in the next ten years to cover all children in the age-group 6 to 14. My own personal opinion in the matter is that in addition to all the above measures we should introduce a system of maintenance grants in rural areas based on a means test of parents and progress and attendance of pupils, which would serve to improve the economic condition of the parents. Side by side we should not hesitate to enforce the provisions of the Compulsory Primary Education Acts in all cases where there is no acceptable excuse for non-attendance of children.

(b) Single-teacher schools

Since India is a land of villages (there are more than 500,000 of them) and since a large majority of them are small villages, we have a large number of small primary schools with only one teacher in each. These single-teacher schools with 20-40 children in each, spread over 4 classes, form nearly 50 per cent of the total number of primary schools. These single-teacher schools pose a serious problem to the educational administrator. He is compelled by force of circumstances to start more such schools every year, although he is aware that single-teacher schools cannot ordinarily be efficient because there is a need to provide educational facilities as widely as possible. Even the Government of India has resigned itself to this position of helplessness. The Working Group on Universalization of Elementary Education in its Interim Report sent out to the States recently states, "The problem of single-teacher schools assumes significance in this context. In a programme of universal elementary education, some single-teacher schools will have additional teachers because of expansion. On the other hand, most of the new institutions to be established will be in small places and, therefore, may have only one teacher each. On the whole, the number of single-teacher schools is likely to increase rather than decrease. In our situation single-teacher schools are inevitable; and adequate steps will therefore, have to be taken to improve them".

It is generally conceded that it is hardly possible to attain a high level of efficiency in single-teacher schools, although there are some exceptionally gifted and competent teachers who perform this miracle. The difficulties can be easily visualized when a single teacher has to teach all the subjects to 30-40 children spread over 4 classes at the same time. It is true that our teacher-training institutions do make an attempt to train the teachers to perform this complicated and exacting task. The teacher educators will have to work out more effective methods, e. g. programmed instruction, use of multi-media (radio, film, television etc.,) for giving the necessary expertise to the teachers in this matter.

(c) Supervision

The supervisory staff entrusted with the responsibility of inspecting and guiding these rural primary schools are at present drawn from the cadre of graduates who are trained to teach in high schools only. They are, by and large, unacquainted with the problems of single-teacher schools and they are lacking in competence to discharge their duties efficiently. For example, the psychology that they have studied is the psychology of adolescents and not of children. The school organisation that they have been taught is the organisation of secondary schools and not of primary schools. They are generally not familiar with the problems of primary schools and particularly of single-teacher rural primary schools. The methods of teaching they have studied have bearing only on high-school subjects. Hence the teacher educators will have to face the problem of training a separate set of supervisors for primary schools, with particular reference to rural single-teacher schools. To meet the immediate demands a crash programme of orienting the existing supervisory staff has to be launched through short-term in-service training courses in methods and problems of primary education.

(d) Methods and problems of primary education

As a long-term programme we should plan to eliminate single-teacher schools altogether. It is an all-India problem, although the State of Kerala is an exception on account of the fact that it is a thickly populated State with rarely any isolated village with a small population. This problem has been solved in the U.S.A. by a process of consolidation under which central schools have been established with free transport facilities and subsidized school-lunch programmes for children. I am told that the large number of single-teacher schools which existed in that country when I was a student in the 1930s in Columbia University have almost disappeared. The problem in India would be the provision

of free transportation and free or subsidized lunch, even if we succeed in establishing central schools. To my mind there is no other alternative.

(e) Local control

The administration of education in India is partly centralized and partly decentralized. For more than 30 years after independence, education has been a State subject and to that extent administration of education is decentralized. Recently education has been included in the concurrent list i. e., both the Central Government and the State Governments have the power to legislate. Within the States, educational administration is, by and large, centralized, although in some States primary and secondary education are under the control of local bodies at the District, City or Town level, with financial assistance from the State Governments. Experience has shown that rural schools suffer from the fact that they are administered by a distant body which is not sensitive to local needs and that the local people evince little interest becaus they have no say in the matter. In my opinion we should move towards more and more decentralization so that the local people get involved in the process of education, and the finances of the local bodies should be strengthened so that they can bear the burden of education.

III. SECONDARY SCHOOLS

There has been a phenomenal expansion of secondary education in India after independence, in spite of the heavy wastage in primary education due to drop-outs and repetition. This is the result of many social and economic forces operating in Indian society today. Among them are:

(1) The growing hunger for education among the urban people and middle classes who have realized that the best and probably the only worthwhile legacy they can leave to their children is to give them good education.

(2) The awakening among the rural people and the lower classes, who are now seeking social advancement just as the urban and middle classes did during the last hundred years through education and Government service.

(3) The disappearance of the old 'job value' attached to primary education, which makes secondary education the 'minimum' and higher education the 'optimum' qualification for any worthwhile job.

(4) The absence of adequate employment opportunities for young persons, so that many of them are forced to go in for secondary or university education simply because they have nothing else to do.

(5) The increasing provision which is being made by State Governments for free secondary education and for the liberal grant of free-studentships, stipends and scholarships at the university stage.

In Karnataka alone we have more than 2,200 high schools. The three types of obstacles which operated as selective factors about three or four decades ago have disappeared. Secondary education has become free and so the financial burden has become lighter. Distance between the school and home has now become very short. There is no educational selection because almost everyone who is in the last standard of a primary school could go to a high school without much effort.

Many of the newly established high schools are in rural areas and most of them are privately managed, with or without Government aid. Many of them are small schools (in Karnataka, for example, 25 per cent of them have less than a 100 students each and another 25 per cent have less than 200 students each) with inadequate accommodation, equipment and staff. Many teachers are part-time teachers and very frequently one teacher has to teach two or three subjects. This proliferation of small, uneconomic and inefficient institutions has been very largely due to the inability of the Government and the Department of Public Instruction to resist the various types of pressures that are brought to bear upon the Minister, the Education Secretary and the Director of Public Instruction and other officers of the department by the members of the Legislature and other interested persons. The State Government has initiated a policy of giving no financial assistance during the

first five years to newly started schools, so that it may act as a disincentive. The remedy has actually proved to be more dangerous, because it has encouraged sub-standard institutions to come up and they are having recourse to many types of malpractices. As a result secondary education is poor in quality in rural areas. Students coming out of these high schools cannot compete with those students coming from well established and efficient urban schools, when seeking admission to higher educational institutions or when they seek jobs. As in the case of primary schools, the only solution appears to be in the direction of establishing central schools with provision for transportation and mid-day meals. Another way in which we can tackle this problem is by establishing students' hostels attached to the central schools, with provision for subsidies for the poor and deserving students.

One other handicap that rural pupils suffer from is the fact that English-medium schools are almost invariably located in urban areas and students who pass out of these schools have a definite advantage over those who study through the medium of the regional languages, because a good knowledge of English, which is secured in English-medium schools, plays a decisive rule in all selection examinations and competitive examinations either for admission to professional colleges or to various services.

IV. HIGHER EDUCATION

College and university education, by the very nature of things, can be provided only in a small number of places, whether urban or rural, and usually such institutions are located in urban or semi-urban areas. Consequently the rural people suffer on account of the extra cost involved in maintaining their sons and daughters in hostels. This factor is also responsible for the fact that most of the available jobs go to urban people.

As stated earlier, admission to engineering and medical colleges is based on academic performance at the junior-college or higher-secondary level, and the rural students suffer from the fact that they come from rural junior colleges and rural higher-secondary schools which are not up to the standard. It is true that in many States some places are reserved in such colleges for those who are socially, educationally and economically handicapped. Nevertheless it is common knowledge that, by and large, entrants to these professional colleges hail from urban areas.

Even after admission is secured by these rural students, their problems do not end. They have to make their own boarding and lodging arrangements. Some of them may obtain uncertain boarding and lodging hospitality in the homes of relations, some get admitted to free hostels run by charitable organisations, some become paying boarders in Government, university or other hostels and the rest have to live in rented rooms and take their food in hotels. To mitigate the hardship caused to rural students we may think of instituting a scheme of rural scholarships or stipends, combined with reduction in tuition fees.

V. TEACHERS

Even teacher-training institutions are located mostly in urban areas, although there are some notable exceptions. A large percentage of the enrolment in such institutions comes from urban families and they are unwilling to serve in rural areas as teachers. They cannot be entirely blamed for this unwillingness when we considerthe hardships of living in rural areas. Living accommodation is not easily available in villages even if one is prepared to pay rent. It must be mentioned here that the State Government frequently expects the villagers to provide rent-free accommodation, not only to house the school but also for the teachers, as a condition for sanctioning the establishment of a school. Furthermore, most of the villages do not have protected wate supply or medical facilities or sanitary arrangements or educational facilities for the older children. Consequently, many teachers live in the nearest town and travel every day to work in the village school. They are always seeking for a transfer to a town. In this connection, it is somewhat odd to note that State Governments are always pressurized to grant extra allowances to those working in urban areas on the ground that the cost of living is high in cities and towns. At the same time teachers are reluctant to work and live in rural areas because of the hardships. I feel that it might be necessary to grant a rural hardship allowance to those who are required to work in rural areas.

In the case of single-teacher schools, if the teacher goes on leave for a short period, the school remains closed and the children suffer. We may have to think of a system of appointing relieving school masters, who may be sent to such schools at short notice as in the case of railway station masters.

VI. SCHOOL BUILDINGS, EQUIPMENT, LABORATORIES AND LIBRARIES

Rural primary schools are housed mostly in one-room buildings provided by the local people or local bodies, with or without a grant from the Government. In urban areas, on the other hand, the Government pays the rent of school buildings, if they do not have their own buildings. Maintenance of the rural school buildings is also the responsibility of the villagers or the local body. It is suggested that the States may examine the feasibility of establishing an Educational Buildings Corporation to be in charge of school buildings, quarters for teachers and hostels for students. The Life Insurance Corporation of India which is assisting many public utility services, the nationalized banks and the Housing Boards may co-operate with the State Governments in this endeavour.

The rural schools also suffer from inadequate facilities regarding libraries, laboratories and equipment. The school library, however small it may be, is very often the only library in the village and its use is restricted to the pupils and teachers of the school only. Whether its services can be extended to the community is a point for consideration by the educational administrators, especially when the public library services are available only in urban and semi-urban areas.

In the absence of power supply most of the villages are not in a position to use audio-visual aids which need electric power. A rapid expansion of the school broadcasting programmes and the extension of the Satellite Instructional Television Experiment might be considered on a priority basis.

VII. SYLLABUS, TEXTBOOKS AND EXAMINATIONS

Generally speaking, the syllabuses are urban-oriented and very rarely do they refer to rural needs and conditions, although 80 per cent of the people live in rural areas. The textbooks also display the same urban character. It appears as though knowledge relating to urban matters is considered more worthwhile than knowledge relating to rural matters. Attempts to have different syllabuses for rural and urban schools have always failed on account of the demands of a common examination system. In India the examinations have a tight grip over the entire educational system, its objectives, its content and its methods. Our high schools, whether they are located in rural or urban areas, are largely college preparatory schools and they are intended to meet college requirements. It is suggested that the schools may be freed from the stranglehold of universities if the School Leaving Public Examination is replaced by examinations conducted by each school. The syllabus can then be framed so as to meet the local needs and the necessary emphasis can be laid on those aspects of education which are relevant to rural conditions.

Working hours in schools and school vacations are based on the needs of urban people.

The Government of India has recently launched a programme of vocationalization of secondary education, and several job-oriented terminal vocational courses are being offered in a large number of junior colleges. But even here one notices the emphasis on technical and industrial courses suitable for urban people as against courses based on agriculture, animal husbandry, etc., which are more appropriate for rural people.

VIII. ADULT EDUCATION

The illiteracy rate in India is as high as 70 per cent, and an overwhelming majority of the illiterates are to be found in rural areas. Various attempts have been made to reduce illiteracy, but the results have not been very encouraging. On October 1980 the Government of India launched a massive National Adult Education Programme with the objective of making 100 million adults in the age-group 15 to 35 literate within the next five years. The obstacles in the way are stupendous but they are more difficult to overcome in rural areas than in urban areas. Adult literacy classes will be as small in size, if not smaller, than primary schools because there cannot be any compulsion at all. There is the added difficulty of providing two separate classes, one for men and another for women. The

programme is more likely to succeed in urban areas e. g., in slums, factories etc. The success depends upon motivating the adult and in providing education which is relevant to his needs in addition to making him literate.

Literacy gained by the adult through such crash programmes is not likely to be permanent and the chances of his lapsing back into illiteracy are very great. To prevent this we will have to provide rural libraries with books which will interest the villager and provide newspapers so that he can keep his literacy alive. If these follow-up steps are not taken his literacy may not last long and the huge amount of money spent may become infructuous.

Educational disparities, world politics, and the New International Economic Order

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I. AN EMPIRICAL POINT OF DEPARTURE

Some years ago a study was carried out for Unesco on the relationship between educational growth and educational disparity[1]. The definition of 'education' was very conventional; it was actually not education but schooling, and the level of schooling was defined in terms of the scale used by the Office of Statistics of Unesco: no schooling, primary incomplete, primary complete, entered first cycle of secondary, entered second cycle of secondary, post-secondary. The definition of 'educational growth' (of a country) was the median level attained (by the population 25+, or by the cohort 25-34 years of age) on this 'scale' from 1 to 6 . And the definition of 'educational disparity' was the distance in level of schooling, on this scale, between the top and bottom 25 per cent, the top 5 per cent and the bottom 50 per cent and the top 5 per cent and the bottom 10 per cent. Data from 86 countries with more than 100,000 inhabitants were used for the study. What were the findings? Simply this:

> "... the higher the educational growth, the higher the disparity. Countries with high educational growth show high educational disparity, and countries with low educational growth show low educational disparity - to some extent because they have illiteracy. The conclusion holds for all three measures of disparity, and is not affected by switching from one age group within the population to another. In other words: educational growth as it is known in the world today does not lead to educational equality". [2]

So much for the relation within countries, the general finding being that as the population as a whole get more schooling the distance between the high and the low in education increases. Of course, there is more distance between the Ph. D and the illiterate in a developing country than between the Ph. D and a primary-school graduate in a developed country. But whereas there are not enough people with a tertiary education in an LDC to be captured by measures in terms of 5 per cent, not to mention 25 per cent, they constitute already a well-sized minority in many MDCs. True, almost everybody in an MDC gets through the lower rungs on the ladder; but then more and more also get up to the upper rungs - and even extend the ladder, building new rungs (for themselves and their offspring). But what is the corresponding situation among countries?

> "What happens right now seems rather to be that the countries left behind by and large are trailing behind at a snail's pace, along the same track where at the moment the two super powers, the United States and the Soviet Union, are in leading positions (together with some others). For every move the bottom countries make (for instance, by making primary education obligatory in practice, not only in theory, or by having some small expansion at the secondary and tertiary levels), the top countries would move even more, into concepts of life-long education, practically speaking obligatory secondary education, tertiary education for more than half of the cohort, and quaternary education for a sizeable fraction of the population". [3]

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[1] Johan Galtung, Christian Beck and Johannes Jaastad, Educational Growth and Educational Disparity, Current Surveys and Research in Statistics, Unesco, Paris, 1974 - also as Papers, No. 1, Chair in Conflict and Peace Research, University of Oslo, 1974.

[2] Ibid., p. 11. [3] Ibid., p. 15.

At the time of writing we do not have available a comparison between the 1960 and 1970 census data to see whether and to what extent there is increasing disparity between countries, but we take this almost for granted. In other words, the general picture that emerges is that of a schooling explosion, starting a century or two ago as the idea of obligatory (and for that reason free) schooling started taking roots in many countries. How it all ends we do not know, but at present the explosion is still in the stage with some particles (the most schooled in the countries with most schooling) being catapulted above all others, with the most schooled countries and individuals increasingly distant from the less schooled countries and individuals. This is the image: disparity, and increasingly so, with a small educational elite in the LDCs at the schooling level of a not-so-small elite in the MDCs, both of them - and increasingly so - distant from their respective populations, but particularly the sometimes miniscule LDC educational elites, given the distance down to no schooling at all, to illiteracy.

II. THE RELATION TO WORLD POLITICS

Have we not heard this story about increasing gaps before? Of course, it is the standard story of 'development' when expressed in economic terms; all one has to do is to substitute for 'schooling' the term 'income' or its equivalents. There is a difference, though: although there is increasing disparity between MDCs and LDCs in economic terms, and within the LDCs, this may not be the case in the MDCs. There is a tradition of economic sharing by taking from the high and giving to the low, through taxation and welfare-state practices not found in the field of schooling. The reason for this, of course, is not that schooling is something one is, not something one has, and hence untaxable, even indelible: there could be a ceiling on years or levels of schooling just as there can be a ceiling on income (a ceiling on education, however, would be as meaningless as a ceiling on personal spiritual wealth). Why is there no such ceiling, except for the maximum posed by the expected life-span of the person? - probably because those who might be hit by such ceilings have the power to impose or not impose them - and understandably would prefer not to even to put the question on the agenda. It should be noted that it was the pressure from the dispossessed in economic terms that led to progressive taxation; the dispossed in educational terms would have to get organized first - and that will not happen as long as the school gates remain relatively open to those most likely to be their leaders.

Before moving on it should be mentioned that in the field of health the situation is actually quite different: there is decreasing disparity, both between countries (e. g., as measured in terms of life-span lived) and within countries (using the same percentile measures as above). [1/] The higher the average life-span in a country, the shorter the distance in number of years lived between the top a percentage and the bottom b percentage - for a very wide range of (a) and (b), it seems. Why? Because there is some kind of upper limit to life-span - at least with our present level of knowledge, and with the exception of some particularly long-lived groups. The MDCs in health are pushing against that limit, so much so that the less privileged are being pushed towards the more privileged. There may also be an upper limit to level of schooling but we are far away from it; and there is no known upper limit to income, except the limits set by the society itself.

Thus, the conclusion is that at present there is a very high level of isomorphism between income and schooling. Both of them can be used as individual property, as something an individual has; and can be discussed at the level of the country, both in per capita terms and in disparity terms. More significantly, the distributions of these goods are relatively similar, and so are the processes these distributions are undergoing over time - in global and very gross terms. And most importantly: these are not formal similarities but substantive relations: there is an intrinsic relationship between income and schooling, between economy and education.

That relationship can now be discussed in two ways that do not quite exclude each other, but they yield very different perspectives.

[1/] Research done in the World Indicators Program, CCPR, University of Oslo.

One approach would be to see it as a bivariate relationship and study, synchronically and diachronically, how the two correlate with each other. The diachronic study of this relation is always interesting as it will give insight in the relationship over time of these two important components in the syndrome of development: what happens if education growth comes before, parallel to, or after economic growth? [1] The synchronic study, however, is less interesting: we are informed how much richer, on the average, is a country x times more educated than another country - but not about how this happened, and why. [2]

The other approach would be to see the distributions of income and schooling as two different expressions of the same phenomenon, and try to come to grips with that phenomenon - the way medical diagnosis would proceed on the basis of two symptoms, not being much interested in how much one symptom is related to the other, not exploring causal relations between them. In fact, that type of research would impede rather effectively any search for the underlying common factor, in casu the disease.

One simple theory that has the advantage of being compatible with the empirical point of departure would be as follows.

Since the Great Discoveries world politics has been dominated by the West. Which part of the West has varied through the centuries and there have been internal conflicts in the West over where in the West the world centre should be located, but the Western dominance is a major historic fact. That dominance has been exercised through a particular Western innovation: a formula of co-operation between state and corporation, both of them vertical, hierarchically constructed structures, with bureaucrats and capitalists on the top. [3] Roughly speaking, the co-operation is simply this: the state takes care of the infrastructure, including the military operations to secure raw materials and markets and the roads back and forth and the police operations to keep the masses at bay; the corporations set up economic cycles in such a way that the West is enriched, particularly the centre in the Western Centre. The corporations have to pay taxes to the state, the state offers protection to the corporations. As the state grows richer it can also offer more: it can place orders for products the corporations can deliver and not only when business is slack; ultimately the state can guarantee survival beyond bankruptcy. Recently the rôle of the state in trying to solve the many problems created by the corporations (environmental degradation, unemployment) has become more pronounced; the state may then ask for more than taxes in return, they may take over the whole corporation (and the corporation may ask them to do so!).

That this formula has proved extremely effective in making the West rich is well known: It has also been effective in keeping other parts of the world poor by peripherizing them - until recently, when decolonization at least loosened the grip the Western states had directly on their colonies, including the power to exact taxes (but as decolonization proceeded, the West compensated through tremendous growth in the transnational corporation, paralleled by a growth in intergovernmental co-operation, such as the EC, the OECD, the Trilateral Commission, etc.). But what does this have to do with the relation between income and schooling, between getting rich and getting educated?

The relation is probably less intrinsic than one might be led to believe. The thesis is simply this: the state-corporation alliance, when operating globally, is instrumental in making its centre rich and it tends to be staffed by people with higher education: consequently, the two phenomena are found together. But we shall not assume that intellectuals are indispensable in running a state and in running a corporation, although well-educated people may tend to believe this. On the contrary,

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[1] "Paths of Development: A Diachronic Study of Development in Japan", in Nancy Baster, ed. Measuring Development, London, 1972, gives an example of this kind of analysis.

[2] This tradition is to a large extent associated with the names Harbison and Myers.

[3] For one use of this as a theme in Western history (not during the Middle Ages, though), see Johan Galtung, Tore Heiestad and Erik Rudeng, "On the Decline and Fall of Empires: The Roman Empire and Western Imperialism Compared", Papers, CCPR, University of Oslo, No. 75, 1978.

in earlier ages both were to a large extent run by (lower) nobility - and one might have been led to speculate how the nobility is able to enrich itself and how rich people are able to get into (by buying titles?) the nobility. [1]

Of course, there are reasons why bureaucrats and corporations both tend to be staffed by intellectuals. For one, as they grow very big and handle global problems, abstraction and generalization become necessary; things cannot be handled on a person-to-person or case-to-case basis. Intellectuals are specialists in this. Second, there are some more specific technical skills, often associated with the term research, that have been useful - although the basic relationship between and within countries existed well before research became a part of the game. Third, and perhaps most importantly: these were positions of power and privilege. They should not be open to all, yet they should not be closed to anybody under the doctrines of liberalism and democracy. What could suit this better than a system of schooling organized as a set of filters to be passed, if the filters could be organized in such a way that only the right people got through? The new nobility, like a mandarinate, in principle open, yet so selective that one might want to institute one more filter on top of the already existing ones, emerges, and quickly so.

So intellectuals started occupying these positions, pushing out, gradually, those who based their claim to such positions on birth and/or money. And in the background were the universities and other centres of higher learning and study, the breeding-ground for the other two, balancing between that rôle and the rôle as indpendent institutions. For some reason politics in these Western countries even tended to become mystified to the point that it was/is considered more leftist for an intellectual to work for/be in favour of the state, more rightist if the leaning is towards the corporation. This is important, because it goes far towards explaining why the state/corporation alliance has been able to command the allegiance of so many intellectuals: there is something for any political taste (even mixed institutions for the people in the centre politically), and there are the universities/academies/think-tanks to withdraw to. Of course, we are not insisting that all intellectuals without exception are employed by the state, the corporations and/or the universities etc. - there are also the free professions - but most of them are.

Thus, we see the growth of 'education' as intrinsically linked to the growth of the state and corporation machineries according to the Western model. This growth is today often identified as 'modernization' ("nation-state building"), and seen as a necessary (some may say sufficient) condition for development. As both states and corporations are organized hierarchically the schooling systems fit them perfectly: it delivers people in layers, primary, secondary and tertiary, that can be fitted into the levels of the organizations, with the mail clerks and sales girls at the bottom and the business-school graduates at the top of either. As they expand the education system has to expand, and vice versa; which is a much more important thesis. To understand the future of schooling one has to have some ideas about the future of these two particular institutions, the state and the corporation.

As they operate today, with the centres by and large in the West (and in Japan), what is needed in the Third World is only what is needed to staff the bridge-heads - from a Western point of view. A totally subservient LDC would have the intellectuals needed for the state organization to play the rôle given it by states in the West, e.g., in terms of preparing infrastructure, suppressing rebellion, etc. And it would have corporations that more or less openly would be the daughter companies of corporations with head-quarters in the West. The jobs to be done would be routine jobs, in either branch of the state/corporation alliance; hence, not much would be needed in terms of creative intelligentsia - it would rather be a question of receptive, imitative and obedient intelligentsia. What is produced by local or foreign institutions for higher education in excess of this demand would go either into brain drain or into the fields, the forests, the mountains as guerrillas.

As this global system grows the following will happen:

(1) In the centre countries more and more people will try to make use of schooling to get into these positions, which are materially non-productive, but non-materially interesting and well rewarded in terms of power and privilege;

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[1] This would be the type of research that would have been carried out had one followed the analytical tradition of investigating bivariate (synchronic or diachronic) correlations only.

(2) As these positions nevertheless are scarce the schooling gaps, as well as the power and privilege gaps (but not the income gaps, and certainly not the health gaps) inside the centre countries will grow;

(3) In the periphery countries there will be a tremendous pressure on these positions which will remain scarce, for which reason the channels of higher (or highest) education will be well controlled so that not too many will be eligible;

(4) the gaps between those who make it and those who do not will increase, particularly as those who "make it" will have the centre in the Centre countries as their models both where schooling level and level of power and privilege are concerned.

All of this is consistent with the data, up till now. Moreover, it is quite consistent with the strong relation between income and schooling, both at the individual and at the country levels. It is, however, rather obvious. It only becomes really significant analytically, and indeed also practically, when the boat is rocked, when something happens to this system. And there is something happening: there is a range of phenomena conveniently lumped together under the formula the New International Economic Order; there are third world countries that are not subservient.

III. ENTER THE NEW INTERNATIONAL ECONOMIC ORDER

The NIEO definitely has to do with the creation of strong state/corporation alliances in the Third world, capable of holding their own against the Western centre. NIEO does not stand for sub-imperialism; it may show up to stand for the imperialism of strong third world countries relative to the weaker ones, but is not as NIEO subservient to Western powers. What those stronger state/corporation alliances will do is quite clear, historically obvious, and absolutely in line with any principle of elementary international justice: get the power to control the economic activity inside the third world country, increase the level of exchange between third world countries, and as to the trade with the first world: improve the terms of trade, and change the composition of the trade, away from the colonial formula of commodity export, manufacture import.[1] These three aspects of NIEO are intimately related, as can readily be seen. The intrinsic need for intellectuals to carry out all this may not be so high; the need for power vested in states and corporations is considerable and they have to be staffed, presumably by people with higher education. Consequently, there are going to be more openings for people with higher education in these countries. The third world elites will expand in size. What will happen to the first world and to the third world masses?

To start with the first world: it is very difficult to believe that all of this can happen without even more serious economic problems than the first world is experiencing at present. This means that the economic basis for maintaining a large, materially non-productive elite will shrink. In all probability that elite will do what elites usually do: try to keep its positions, laying off other people (workers) instead. This will increase the pressure on institutions of higher education since parents, and students as well, will see that education is more than the gateway to power and privilege, it may also be the gateway to job security in economically not very secure periods.[2] More importantly, the state/corporation alliances will search for new outlets for their tremendous energies and capacities. A number of people with higher-education training will be in search of administration-intensive, capital-intensive and research-intensive things to do, since only these things, and only when they look socially indispensable enough, will legitimize their position in power, or their having any position at all in times of heavy unemployment.

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[1] For an analysis of various aspects of NIEO, see Johan Galtung, Towards Self-reliance and Global Interdependence, CIDA, Ottawa, 1978.

[2] Thus, we doubt that there are many with tertiary education and a job experience among the famous OECD 17 million unemployed; among the tertiary education graduates there are, of course, many unemployed.

In other words, from a situation where means of production that are administration-, capital- and research-intensive call for a certain mode of production with bureaucrats, capitalists and researchers on top, we are getting into a situation where that mode of production, that intellectual-heavy social structure calls for continued, even increased use of those means of production. If the third world raw material supply is dwindling (because they process themselves) and the markets are closing (because they supply them themselves), then that entire structure has to turn on the first world itself. This is the period where nuclear energy will be expanding, not as a solution to any energy problem (except in some places), but as a solution to the problem of intellectual power elites threatened by decentralizing, administration-, capital- and research-extensive energy schemes (solar, wind and wave, geo-thermal, biogas and biomass). This is also a period where the structure will be searching for new military means of destruction that can make the structure top look indispensable; including the search for a rationale for those new means of destruction and a strategy for their application.

In short, the situation in the first world, where the well-educated elites are concerned, will be the opposite of the situation for the third world elites: too much manpower supply relative to the structural demand as opposed to too little supply relative to the demand. As a result there will be an increasing tendency towards inverse brain drain, people with higher education moving from the first to the third world to staff the new structures that are emerging in connection with state (including, of course, the military and the police), corporation and university building[1]. After some time the third world may discover that it will not be so easy to get them out when their own people are ready - that new pretexts for hanging on will be found. Obviously, these brain-drain expatriates prefer a working situation in a structure that is expanding at the places where their skills are demanded, not a society threatened by contraction, with a population to a large extent sceptical of their skills and inclinations, many of them experimenting with alternative ways of life and all of them, one way or the other, trying with less input from higher education power intellectuals in the state and the corporations.[2] In short, the class character of intellectuals will become more evident, transcending such minor distinctions as whether they work for themselves, for the state or for the corporation - or at a university etc.

What about the non-intellectuals, for the sake of simplicity those with less than tertiary education? The prediction is increasing unemployment in the first world and increasing tendency to look for other social constructions that will ensure that their basic needs are met and at the same time diminish the power of the centralizing elites. Much of this type of movement will be, and is, spearheaded by young well-educated people who under periods of expansion would have found their positions with little difficulty and now find all the niches occupied. The movement will have its waves, its ups and downs, but with the accessible world outside the first world failing to expand as much as first world organizational and productive capacity there obviously is a problem. As a matter of fact, a slight de-industrialization process in the first world has already been visible for some time. Of course, the corresponding industrialization process in the third world is to some extent controlled by the first world, but that will not last long: strong third world states will use their power to nationalize such industries and hand them over to strong third world transnational corporations. They may or may not employ first world intellectuals.

But what about the third world masses? Of course, the situation will vary very much from one country to the other, but there is probably a general pattern. We can start with the worst case, probably not a very untypical one. The struggle to bridge the gap between MDCs and LDCs can often, more realistically, be seen as a struggle to bridge possible gaps between MDC and LDC elites (of the three types mentioned), seeing to it that they have the same material living standard and (at least) the same power and privilege. A modernization programme serves this end, a third world

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[1] Of course, the easy channels along which to flow would be the old imperial channels, with Britons flowing back into the former colonies of the Empire, the French intellectuals staffing the whole Communauté, and so on. Lest someone might say that this is the typical sentiment voiced by an envious Norwegian it should be pointed out that the Norwegian empire is all over, at least where our ships and Lutheran Christianity went.

[2] This, incidentally, does not mean that technologies cannot be research-intensive: solar energy, cycles based on biogas and algae ponds etc. certainly can be research-intensive. It only means that there should be no built-in reliance on intellectuals in power positions.

elite emerges, in most regards a true replication of the first world model. They are materially non-productive like their first world counterparts, hence, they have to be maintained by someone. Loans and grants from first world countries cannot last for ever; they also become increasingly expensive. Other sources of revenue have to be found; the NIEO offers a catalogue of possibilities. The NIEO is about the "economic rights and duties of states", not about the needs of human beings - the latter are almost unmentioned in major NIEO documents.

Hence, they are probably in for a tough time. It took the first world two centuries or so before their masses got a standard of living which did not set them totally apart from the elites, and the first world had almost the whole world to exploit, including their own. It is difficult to see that the third world countries, in general, will be able to secure for themselves that much hinterland, except, perhaps, for a few of them that are among the first out (the first one was, of course, Japan, and she has been playing this game well - now threatened herself by the next waves of imperialism). Failing that they will have to turn inward to secure the material basis of the elites, and since these elites are much more numerous than before it stands to reason that the masses in such countries will be squeezed more than before. In all such cases an educational ladder will be stretched down to these masses, divided in sections called primary, secondary and tertiary, with twelve to sixteen rungs on them - and as mentioned, the hope of getting to the top will not be entirely unwarranted as long as the system is expanding. But the proportion making it will be miniscule.

But there are, of course, also more optimistic models. Thus, there is the idea that elites will share the social surplus, cut down on their material living standard and privileges, if not necessarily on their power excess, go in for a policy of meeting basic needs for the masses (meaning basic material needs), and from there to a general policy of converging living standards between elites and masses. All of this is actually compatible with the same educational model as has been outlined above: a small elite with tertiary education working in the upper echelons of the tertiary sector, a labour aristocracy with secondary education working in the secondary sector, and a vast majority with primary education working in the primary sector, extracting raw materials, including foodstuffs, from nature.

And then there is a totally different model, based on educational sharing, not only on economic sharing. According to this model there would be no sharp distinction between a well-educated elite engaged in non-material work and production, and masses just enough schooled to read and follow the instructions emanating from the elites, and engaged wholly in material production (and distribution). The elites would also engage in material production, on a rotation basis, and the non-elites would be stimulated to use a maximum of creativity and to participate in the design of the production processes. Clearly, this was the Chinese model up to the death of Mao Tse-tung, and the technology favoured was "walking on two legs", a mixture of administration-, capital- and research- intensive technologies with participation-, labour- and creativity-intensive technologies. Since the latter make elites of the type usually heading or staffing the top of the states, the corporations, and the universities less indispensable if not out right superfluous, they would be expected to resist this type of development and wait for an occasion to come back. They waited till the death of Mao Tse-tung.

The educational implications of this last model are also quite clear: the whole classical ladder of schooling narrowing the focus to increasingly non-material, intellectual concerns producing graduates who cannot function outside a materially non-productive pocket in society is rejected. In its place would come all those things that educational reformers always tend to talk about: an education that drives no wedges between manual and mental work, between material and non-material production; that is closely linked to everything else that goes on in society with the pupils/students participating in the work processes of as many kinds as possible and all kinds of workers also going to school. In all of this it might still make sense to think in terms of years and levels of schooling passed, so the whole population would somehow grow educationally together. But as the educational experience would be less stratified disparities might decrease rather than increase all the time. In other words, schooling would no longer serve so well as a basis for a new class formation, and it should be pointed out that the need for such a basis would be particularly strongly felt among elites in socialist countries where some other bases have been eliminated (such as hereditary ownership of means of production). Hence, we would expect socialist countries to be particularly afraid of such educational experiments, as there is more for the elites to lose: there is not so much to fall back upon (except the naked power of the party cadres, but even that would be in need of some educational legitimation). Capitalist countries with a firm basis for elite power in other sectors of

society would be more likely to engage in experiments. Thus, China seems now to be heading back to normal, in a sense; it took the extraordinary energies and insights of the Mao Tse-tung era to head in another direction.

Thus, our conclusion is that the first world may not only be forced to go in for another type of schooling policy; they may also like it altough there will be heavy resistance from the entrenched state/corporation elites. The second world will continue on its present course. And the third world, with the exception of a handful or at most a dozen of countries, will serve the elites more than the masses and, with ever increasing educational disparities, go in for a development model in general and a schooling model in particular that they will one day wake up to discover that the first world countries they are imitating are about to leave. At the same time the inverse brain drain will have been in operation for some decades, constituting a neo-colonial nucleus that will be used, many times, as a pretext for first world military intervention "in order to save (name of first world nationality) lives". Thus, the interface between educational policy and military policy becomes very clear: it may look better for world public opinion when the paras and the marines (or the people they have trained locally) enter the scene of revolt to save some missionaires and nuns (particularly the nuns) and a handful of professors of social science than when the purpose is to come to the rescue of over-privileged corporate elites, foreign and/or domestic and their hardware.

IV CONCLUSION

It should be clear from the above that what we have been looking at, and critically, is schooling rather than education. Education, properly understood, is a form of human growth and development, by acquiring, critically, skills and knowledge, vertically from one who has more of these things, horizontally in dialogue with others engaged in the same search, alone, as self-education. Schooling is something quite different:[1] it is a system for the production of vertically and horizontally arranged status: vertically in terms of level of schooling passed 'successfully' (with some extra nuances added because schools at the same level are often ranked among themselves, and the graduates are ranked by grading); horizontally in terms of specialization. Schools prepare human material for allocation into a vertically and horizontally fragmented social order by putting tags on them indicating where they would fit (best). There is also some education going on in schools; that should not be denied, but it is hardly the primary purpose.

In general schools follow the social order, domestic and global, not vice versa; but the co-ordination is never perfect except under conditions of extreme autocracy. The demand for intellectuals in materially non-productive positions and the supply of tertiary education graduates fit to fill these positions will almost never be perfectly matched. Gaps between demand and supply in this field will be among the important sources of social dynamics for any system based on 'modernization' in the sense outlined above. When there is more demand than supply the schooling system will expand, particularly at the level of tertiary education, and internal disparities will increase. When there is more supply than demand for these positions, for instance because of over-production of intellectuals, there will be a pressure to expand - for instance by nationalizing small business or 'co-ordinating' local crafts and shops so that new positions are created in state bureaucracies for intellectuals, presumably of a leftist persuasion.

More important, however, because it has more clearly international implications: when there is less demand than supply for the activities of these positions - for administering other people's territory or doing their business for them - then there is a crisis. The system will try to solve the crisis by restoring status quo ante, e. g. by creating international bureaucracies for ex-colonial bureaucrats or by means of brain drain into third-world-run corporations rather than trying to run it all from back home. But that may not work, in which case the system will try to find new and important tasks at home. If this still proves insufficient to provide positions for graduates worthy of their level of schooling the crisis is deep. The countries in the first world may even be heading for a situation where the economies no longer can maintain these enormous non-productive (all the time in the direct material sense, in the sense of growing potatoes, of constructing houses, of

[1] For an elaboration of this, see Johan Galtung and Veslemoy Wiese, "Measuring Non-formal Education", Papers No. 14, CCPR, University of Oslo, 1974.

making clothes, in short of meeting basic material needs) elites. The signs are there when the pay-checks to bureaucrats, managers and professors no longer arrive in time - the first sign, of course, being the stop sign for any new openings. In such a situation the elites will be in need of new types of skills, as many of them will start settling in a countryside with better possibilities of growing potatoes and wheat and rice. They will certainly demand another type of education for their children than the one they got themselves.

Conclusion: our statistics about schooling are not the outcome of educational philosophy or anything like that, but the outcome of strong political forces in our contemporary world. With state machineries, corporations and universities expanding, and more so in the first than in the third worlds, the predictable outcome will be the type of data reported in the introduction: increasing disparities between first and third world countries, increasing disparities within either group of countries. With the first world in crisis disparities between first and third world countries will taper off and may even start decreasing, at least at the level of tertiary education. The same may happen inside the first world countries, but not inside the third world countries: in them disparities will continue to increase, probably for a long time.

Further, the stage is set for major educational reforms in the first world, out of sheer necessity. Some third world countries will participate in, even spearhead this type of movement and create a setting for very interesting forms of international co-operation, no longer based on the transmission of schooling technology from overschooled or underschooled countries. China was such a country; maybe the former Portuguese colonies in Africa are now in that stage. [17]

At any rate, these are the outcomes of major political struggles and decisions, although often in frozen form: modernization and its concomitant, increased schooling at all levels, are taken for granted, as a law of social nature, without asking whose interests they serve. The elites most served by systems so based on vertical division of labour with intellectuals on top, not only having the most interesting (challenging, personality expanding, creativity-demanding) jobs but in addition also managing to get better paid than anybody else, will not tend to question the system - they will rather change the basis of legitimation from serving democracy (old, nineteenth-century bourgeois vintage) to serving socialism (new, more twentieth-century- but not very convincing to Europeans living under socialism or the mixture of the two, social democracy). To the extent it remains unchallenged the system will continue; strong social forces would be needed to change its course. And those forces are only likely to gain momentum in times of system crisis - as mentioned above.

Finally, lest this analysis should look too materialistic: of course changes in the sector of schooling and education may sometimes lead, not lag, major socio-political changes. A massive desertion of the schools of business administration and engineering, to mention two key production sites for the staffs of the state/corporation alliance, would have a tremendous impact on the system: there is a limit to how much it can manage without an inflow of staff. The Vietnam war in the US was accompanied by a change of that type - for some time. However, and that is a major point: it did not last; when system legitimacy was somehow restored (e. g. through the brilliant management of the Watergate affair) the youth started filling up the vacancies again. Stronger shocks would be needed.

But the measure of impact of new tendencies in schooling and education should not be limited to frequencies of attendance. Just to think in terms of something new and alternative, and to start some action in that direction, some experiment, however small, poorly funded and attended, is significant because it shows that the dominant form and process is not a law of nature never to be transcended. So, as we live now very much in an age of great transformations we are probably in for great surprises in the years to come, and for great opportunities to practise many of the excellent plans for reform.

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[1] A triangular co-operation between Africans, Brazilians (Paulo Freire and his colleagues) and the base in Geneva, at the World Council of Churches.

Recruitment patterns and labour market analysis:

some examples and suggestions for further research

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I. INTRODUCTION

This paper deals with recruitment patterns, i.e. with the characteristics demanded by employers of applicants when a job opening is filled. In a sense the same terminology could be applied in case of internal promotion, which may be seen as recruitment in an internal labour market.

The basic idea this paper starts out from is that recruitment criteria are a function of, amongst many things, the situation in the labour market. A well known and often mentioned example is the phenomenon entitled qualifications inflation: when qualified manpower becomes more abundantly available one of the effects is an increase in the qualifications employers demand for a given type of job. As it was formulated on one occasion[1/]:

> "Only ten or fifteen years ago in many developing countries almost everyone who completed six or seven years of education - at a time when only 10 to 15 per cent of the age group did so - could be fairly sure not just of a modern sector job, but of a clean non-manual modern sector job. Hardly anywhere, now, can one get such a job with less than nine or ten years of education and a secondary certificate. In parts of South Asia college graduates compete unsuccessfully for routine clerical jobs with no great prospects."

Another example of recruitment practices being determined by labour market conditions is that in a tight market discrimination by sex or race is likely to occur less than in an excess supply situation.

In general, the study of recruitment practices may provide useful information about the relationships between supply of and demand for human resources. More specifically, it may be of use in such areas as educational planning, training policies and vocational guidance.

In the following two chapters some examples are presented of analysis of recruitment criteria, taken from studies undertaken in the context of IIEP or ILO programmes. It must be emphasized that the purpose of this paper is not to present a consistent testing of a theory about the functioning of labour markets, but rather to present some examples of the type of analysis that has been done in this area, and to put down some ideas about where we may try to go from here. In chapter II four case studies are reported on in which employers were explicitly asked to specify their preferences. A fifth study analyses the first labour market experiences of vocational school graduates, without entirely separating employers' preferences from other elements. Chapter III comes back to the four country case studies, confronting the employers' preferences with other information such as individual earnings, taking up questions such as "if employers say they have a preference for a certain category, do they also pay this category better?" A fifth section in chapter III comes back to an earlier study by the present authors, viz. on the correspondence between education and the world of work. Finally chapter IV presents an agenda for future research in these areas.

1/ Ronald Dore, John Humphrey and Peter West, The basic arithmetic of youth employment: estimates of school outputs and modern sector vacancies for twenty-five countries, 1973 and 1980, ILO, Geneva, Working paper WEP 2-18/WP 19.

II. RECRUITMENT PRACTICES

1. Singapore

In a survey carried out in the manufacturing sector in Singapore during 1974, [1/] establishments were asked to indicate their hiring preferences with respect to variables such as age, sex, race, and educational qualifications. In their analysis Pang and Lin report that:

Educational requirements for high-level manpower generally increase with firm size. (see Table 1). While only a minority of small firms prefer university-trained persons for managerial jobs, 85 per cent of the large firms require a university education for a managerial, executive or professional position. This is not prima facie evidence of 'screening' by firms because the job content of high-level posts in big firms may differ considerably from those in small firms. Except for production workers, larger firms prefer more highly educated people than smaller firms in all job categories. For most firms, only a primary-level education is required for production work. Secondary education is preferred for lower white-collar, supervisory and technical blue-collar jobs.

Table 2 tabulates the firms' preferred sex, race, and marital status for different types of workers. Male workers are preferred in all jobs except clerical and secretarial white-collar jobs. Female labour is preferred for many production jobs. This reflects the structure of the manufacturing sector in Singapore: females dominate the workforce in the textile and electronic industries. These industries require high manipulative skills and agile dexterous hands, skills which are considered to be more ably supplied by young female workers.

An interesting piece of evidence is a large preference for Chinese workers. This preference, however, declines with firm size. Many smaller firms are family-run. Their hiring policies tend to be particularistic. Table 2 also indicates that firms prefer married individuals in high-level and supervisory jobs. If being married is an indication of stability, it suggests that employers may be using this characteristic to allocate married workers into primary jobs and less stable, single workers into secondary jobs. The establishment survey suggests that employers do have preferences with respect to the personal and educational characteristics of workers. While these results are interesting, they do not and cannot prove that "employers are irrational and not concerned with the productivity contribution of their workers".

[1/] Pang Eng Fong and Lin Pak Wai, Education, socioeconomic status and labour market success : a case study of manufacturing workers in Singapore, ILO, Geneva, Working paper WEP 2-18/WP7.

Table 1. Preferred education of workers by skill category and firm size

Firm Size		Less than 50					50-99					100 and above				
Preferred Educational Qualification / Skill Category	Total %	Primary	Some Secondary	SC/HSC	University (Diploma & Degree)	No Preference	Primary	Some Secondary	SC/HSC	University (Diploma & Degree)	No Preference	Primary	Some Secondary	SC/HSC	University (Diploma & Degree)	No Preference
High Level Manpower	100.0	10.2	26.4	34.7	20.4	14.3	-	3.6	42.8	53.6	-	0.9	3.5	9.7	84.9	0.9
White Collar	100.0	1.7	31.7	56.7	-	10.0	-	4.3	91.3	4.3	-	2.0	2.0	88.0	4.0	4.0
Blue Collar																
Supervisors/Foremen	100.0	11.4	37.1	34.3	5.7	11.4	-	-	75.0	12.5	12.5	10.2	10.2	59.0	7.7	12.8
Technical Workers	100.0	12.5	62.5	25.0	-	-	-	-	66.7	-	33.3	-	14.3	50.0	35.7	-
Production Workers	100.0	67.8	3.6	-	-	28.6	60.0	10.0	-	-	30.0	69.6	13.0	-	-	17.4

Source: Economic Research Centre 1974 Survey of Manufacturing Firms, unpublished data.

Table 2. Preferred sex, race and marital status of workers by skill category (1) and firm size

Skill Category	Total %	Sex			Race			Marital Status			
		Male	Female	No Preference	Chinese	Malay	Foreigner	No Preference	Single	Married	No Preference
1. Firm size: Less than 50											
High Level Manpower	100.0	87.0	3.7	9.3	62.5	-	4.2	33.3	7.8	47.1	45.1
White Collar	100.0	24.1	44.8	31.0	62.3	-	-	37.7	25.9	7.4	66.7
Blue Collar:											
Supervisors/Foremen	100.0	81.1	2.7	16.2	61.1	-	-	38.9	13.9	27.8	58.3
Technical Workers	100.0	83.3	-	16.7	50.0	-	-	50.0	36.4	9.1	54.5
Production Workers	100.0	46.7	15.5	37.8	62.8	-	-	37.2	20.9	-	79.1
2. Firm size: 50-99											
High Level Manpower	100.0	81.2	3.1	15.6	50.0	-	21.4	28.6	13.8	44.8	41.4
White Collar	100.0	22.2	37.0	40.7	47.8	-	-	52.2	28.0	8.0	64.0
Blue Collar:											
Supervisors/Foremen	100.0	75.0	5.0	20.0	52.6	-	10.5	36.8	15.8	10.5	73.7
Technical Workers	100.0	100.0	-	-	33.3	-	-	66.7	-	-	100.0
Production Workers	100.0	17.6	23.5	58.8	35.7	-	-	64.3	14.3	-	83.7
3. Firm size: 100 and above											
High Level Manpower	100.0	89.6	4.2	6.2	32.8	-	6.0	61.2	1.5	16.7	81.8
White Collar	100.0	21.7	43.5	34.8	32.6	-	-	67.4	20.0	5.0	75.0
Blue Collar:											
Supervisors/Foremen	100.0	71.1	8.9	20.0	22.8	2.8	5.7	68.6	6.1	12.1	81.8
Technical Workers	100.0	94.1	-	5.9	46.1	-	-	53.8	8.3	8.3	83.3
Production Workers	100.0	26.1	39.1	34.3	9.5	-	-	90.5	13.6	-	86.4

(1) For definitions of the categories, see Pang (1)

2. Indonesia

This study is the result of a survey carried out in 1977 of 80 firms with 10,000 employers in the private sector of Indonesia regarding the utilisation of manpower, hiring practices of employers and employment conditions with the job. The first belong to four sectors: hotels, trade, construction and textiles[1/].

The conditions for access to various occupations were studied by specifying (i) the importance of education as a criterion for recruitment and (ii) the profile as defined by employers for various job categories. Table 3 gives the number of cases noted as irrelevant for the different criteria used for internal and external recruitment for the job categories studied. The following comments deserve to be made:

- Judging from the relevance of the criteria, for all occupations, "age" ranks generally on the top of the list of criteria of recruitment. Education holds a similar rank though 'age' comes first for book-keepers and supervisors and education first for secretaries and skilled operators (internal recruitment). In the case of external recruitment, 'age' comes first, and 'education' second in the criteria for recruitment.

- Sex is the third criterion for both internal and external recruitment, with a few exceptions where experience is judged to be more important than sex. That is true for managers and book-keepers for external recruitment and for book-keepers and secretaries for internal recruitment. However, experience seems to be of much less relevance than sex for the access to the other occupations studied.

- Special training is not as favourably ranked as one would have expected it to be; in many cases for about 50 per cent of the employers it is judged to be irrelevant as a criterion. Significantly enough, for 'supervisors', 'skilled workers' and 'unskilled workers' the quasi-totality of respondents judge 'special training' as irrelevant.

Table 3. Number of irrelevant cases: (Indonesia)

	Managers		Technicians		Book-keepers		Secretaries		Supervisors		Skilled workers		Unskilled workers	
	I	E	I	E	I	E	I	E	I	E	I	E	I	E
Age	1	1	3	4	2	5	4	0	3	0	5	5	-	10
Sex	8	[illegible]	1	2	7	12	10	4	6	4	1	4	-	4
Education	1	1	3	4	6	4	3	2	11	1	1	21	-	26
Training	17	5	9	12	11	17	17	9	39	15	7	55	-	55
Experience	8	1	6	19	4	11	7	6	13	9	3	35	-	34
Number of observations	(10)		(23)		(30)		(19)		(18)		(58)		(57)	

I = Internal recruitment

E = External recruitment

[1/] Jacques Hallak, et al. "Education and work in Indonesia", in Education, work and employment - I: education, training and access to the labour market, Paris, Unesco: IIEP, 1980.

Altogether, if we group the criteria as 'cognitive' (i.e. education, experience, training) and as 'ascriptive' (i.e. age, sex), we can see that for most occupations cognitive criteria, while occupying a high position for selection of applicants, are not - far from it - the dominant criteria for recruitment. The place of ascriptive criteria is significant for all occupations as they come first or second for all recruitment if we judge by their relevance.

Moreover, the 'relative position' occupied by ascriptive and cognitive criteria depends on the job categories: for the top occupations: 'managers', technicians' and book-keepers', cognitive and ascriptive criteria hold the same position for the executants: 'supervisors, 'skilled and unskilled operators' ascriptive criteria are definitely the dominant factor for recruitment.

3. Panama

In the framework of a research study carried out in Panama a survey questionnaire was administered to 80 firms[1/]. The questionnaire included a section dealing with criteria for recruitment and promotion for the following selected occupations: managers; professionals; production supervisors; other supervisors; accountants; executive secretaries; secretaries; workers doing qualified jobs (W.Q.); other workers (W); salesmen. More specifically, employers were asked to rank by order or preference the following criteria for selection of applicants to each of the selected occupations: health; civil status; age; education; male; female; police record; English; experience; seniority. Some of the main conclusions of the analysis may be quoted:

> "Adopting a 5 per cent degree of confidence (t-test), it is possible to demonstrate that in the case of 'managers': age occupies a higher rank than civil status, sex or police record; a lower rank than education or experience; and that no conclusion can be made as to the 'relative position' of age in comparison with the other criteria. Similarly English is (5 per cent) more important for 'managers' than for 'supervisors of production'; and for 'executive secretaries' as opposed to 'accountants'; no comparison can be made with regard to this criterion for 'salesmen'. Tables 4 and 5 illustrate these findings."

Table 4. Comparison of recruitment criteria for managers (5 per cent degree of confidence T - test)

	H	C.S.	A	Ed	M	F	P.R.	Eng.	Exp.	S
Health		>		<		>	>		<	
Civil Status			<	<	<	>		<	<	<
Age				<	>	>	>		<	
Educat on					>	>	>	>		>
Male						>			<	
Female							<	<	<	<
Police Record								<	<	<
English									<	
Experience										>

Note: It is striking from this table to see that experience and education are both the most important criteria for selection to 'managers' and that 'female' is considered as a 'criterion' for 'non-access' to the job of 'managers', and not as an 'irrelevant criterion'. The opposite holds true for 'males' : 'civil status', 'English' and 'Police record' are 'poor' criteria. The picture is mixed for 'health', 'age' and 'seniority'.
Note: - 1st row: Health C.S. means Health is more important than Civil Status when recruiting for a managerial position.

[1/] J. Hallak and F. Caillods, "Education, work and employment in Panama", in Education, work and employment - I (op. cit.).

Table 5. "English" as a criterion for recruitment to various occupations (5 per cent) (private employers as for public irrelevant)

	M	A	Sup.	E.S.	S.	W.Q.	Workers
Managers		>	>	<			>
Accountants				<	<		>
Supervisors				<	<		>
Executive secretaries							
Secretaries						>	>

Note: "English" is evidently not a "criterion" of the same importance for "executants" (i.e. W.Q. and Workers) as for "executives" (i.e. "managers", "executive secretaries"). It has more importance for "occupations" which involve relations outside the firms (managers, secretaries) than internal to the firms (supervisors).

In order to check whether recruitment criteria differ according to firms' characteristics, we carried out the same statistical treatment for each category of firms (public/private; large/small; modern/traditional, etc.). We found for example that in the public sector no clear-cut conclusion can be drawn with regard to English as a selection criterion, whereas in the case of 'private' firms it plays a significant rôle in various occupation.

While this partial information is sufficient to document some of the statements made above, in order to come to more complete conclusions useful for policy-making, we need to combine these findings with a view to drawing a more integrated picture of recruitment policies for various occupations. To put it differently, it is not sufficient to compare 'health' with 'age' for accountants' and to decide that 'age' is more important than 'health' in the selection procedure; what we really want, is to say which criteria are 'irrelevant'; to what extent ascriptive criteria are relevant; whether cognitive criteria are more or less important than other criteria in recruiting for occupation x; how education compares with other criteria. Hence we need to define 'profiles' by producing 'chains' of criteria ranked by order of preference for each occupation; we need also to supplement these profiles by comparing occupations themselves.

The results are presented in Tables 6 and 7.

In addition to comparisons within occupations, comparisons of the relative importance of recruitment criteria were made between occupations. The combined results for the public and private sectors appear in Table 6. The results were also disaggregated by sector[17]. Briefly the analyses revealed several important findings.

Firstly, the distinction in terms of ranking of criteria between the public and the private sector, is certainly useful, at least insofar as the rôle of 'police record' is concerned. In the private sector, this criterion seems to play a much more minor rôle than in the public sector. Similarly, 'seniority' is a slightly more important criterion in the public than in the private sector. On the other hand, education ranks slightly higher in the public than in the private sector.

Secondly, with two exceptions (supervisors of production, workers), education is always (one of) the first criteria for access to all occupations. The same result is true for experience (except for managers, secretaries). This means that 'cognitive aspects' of job applicants, whether developed on the job (experience) and/or through the educational system (education) are the top criteria for selection. However, while in the case of education, some difference in the relative weight given to this criterion can be perceived when comparing various occupations (education is more important for accountants than secretaries, more for secretaries than managers, more for managers than supervisors, more for supervisors than workers doing qualified jobs and more for W.Q. than grass-root workers), no significant pattern seems to emerge for experience. Clearly, there is a strong contrast between managers and secretaries where education comes first and experience second, and supervisors and workers, where the opposite holds true. The question which remains to be answered is whether there is a 'substitutability' phenomenon between the two.

[17] J. Hallak, F. Caillods, op. cit.

Table 6. Selected criteria ordered according to employers' preference in the public and private sector (%)

Managers:	Education > Experience > Age > Seniority, English, Health > Civil Status
Technicians:	Education ~ Experience > Health > Sex
Supervisors of production:	Experience > Education, Seniority > Health, Sex, English > Civil Status, Police Record
Other supervisors:	Experience ~ Education > Health > Age, Sex > Civil Status, Seniority, English, Police Record
Accountants:	Education ~ Experience > Health, Age > Seniority, Civil Status, Sex, Police Record
Executive secretaries:	Sex, English, Experience, Education > Health, Civil Status, Age, Police Record
Secretaries:	Education > Experience, Sex > Health, English > Age > Civil Status, Police Record, Seniority
W.Q.:	Education ~ Experience > Age, Health > Sex > Police Record, English > Civil Status, Seniority
Workers:	Experience, Health, Age, Police Record > Sex > Education, Seniority, English

Table 7. Degree of relevance of criteria (public)

Age:	Secretaries > Technicians
Education:	Technicians > Accountants > Secretaries
Experience:	Managers > Executive Secretaries; Technicians > Secretaries > Workers; Technicians > W.Q.; Supervisors of production > W.Q.

Table 8. Degree of relevance of criteria in the private sector

Health:	Workers > Managers; Workers > W.Q > Accountants; Workers > Supervisors > Accountants; Workers > Secretaries
Civil Status:	Managers > Salesmen; Supervisors > Workers; Secretaries > W.Q.
Age:	No chain; least relevant for Supervisors
Education:	Accountants > Secretaries > Managers > Supervisors > W.Q. > Workers Other Supervisors > W.Q.
Male:	Workers > W.Q. > Managers > Secretaries Other Supervisors + Supervisors > Accountants > Secretaries W.Q. > Accountants > Secretaries
Female:	Secretaries > Accountants > Supervisors Secretaries > W.Q. > Supervisors Executive Secretaries > Accountants > Supervisors
Police Record:	W.Q. > Accountants > Supervisors Workers > Secretaries > Supervisors
English:	Executive Secretaries > Managers > Supervisors > Accountants Workers Secretaries > Supervisors Secretaries > Accountants > Workers Secretaries > W.Q.
Experience:	No chain; most important Accountant and Supervisors
Seniority:	Supervisors > Managers > Secretaries Supervisors > Managers > W.Q. Supervisors > Salesmen Supervisors > Workers Supervisors > Accountants

Another 'cognitive aspect' of job applicants is English. It holds a major position for 'executive secretaries' (which is natural enough in Panama), a medium or low position for the other occupations (except technicians and accountants) which is somewhat surprising. Seniority, which is another proxy for 'cognitive dimensions' of applicants, is rather a poor criterion except for 'managers' and 'supervisors'. This is consistent with the fact that quite often recruitment for these jobs is made through promotion.

It is interesting to note that sex is a top criterion for admission to the jobs of 'executive secretaries' and 'secretaries'. This can be explained by 'cultural factors'. More generally, we should note that ascriptive criteria (i.e. sex, age, health, civil status) do play a significant rôle in the selection procedures. Some occupations are definitely restricted to young or old (workers, managers), to applicants with good health (almost all occupations); to men or women (supervisors, secretaries, workers, W.Q.). While in general ascriptive criteria follow cognitive criteria, it is not so for two occupations (secretaries and workers) where they hold similar positions.

4. Rwanda

In 1977 a national employment survey was carried out in Rwanda, covering the modern sector of the economy, with the exception of the public sector. [1/] The survey covered establishments of 30 or more employees, smaller establishments, and 'communes'. At the same time information was collected on a certain number of individuals employed in these establishments and communes. In one section of the survey employers of the larger establishments were asked questions regarding recruitment practices. In principle this part of the survey was not based on sampling, but was of an exhaustive nature. The response rate of about two-thirds may have biased the results, but nothing concrete can be said about this aspect. Replies were obtained from 189 establishments, of which 157 were in the private sector and 31 in the parastata. sector.

Two types of data were collected from employers that are of relevance in the present context. The replies to a question about employers' preferences regarding sex and age at recruitment are presented in Tables 9 and 10 respectively. As one might expect, employers show a stronger preference for older, more experienced workers than for younger and less experienced. As to sex, few employers show a preference for women; that is, they either prefer men as employees or are indifferent.

Table 9. Preferences regarding age for recruitment

	'cadres'	'Technicians'	'Workers'
Indifferent	4.3%	3.3%	0.7%
Over 25	83.7%	70.0%	60.1%
Under 25	12.0%	26.4%	35.5%

Table 10. Preferences regarding sex

	'cadres'	'Technicians'	'Workers'
Indifferent	41.7%	36.9%	22.4%
Male	57.3%	62.2%	72.1%
Female	1.0%	0.9%	5.5%

[1/] Enquête 1977 sur l'emploi, Project RWA/73/002, UNDP, ILO, March 1978

Additional data was obtained on the basis of the following question[1]:

What interests you most when recruiting new personnel? (Tick one case only)	'Cadres'[2]	'Technicians'	'Workers'
Level of education	☐	☐	☐
Vocational training	☐	☐	☐
Experience obtained	☐	☐	☐

A total number of 98 replied for 'cadres', 105 regarding technicians and 147 for workers. The percentage distribution of the replies is shown in Table 11.

Table 11. Percentage distribution

	'Cadres'	'Technicians'	'Workers'
Level of education	52.0	16.2	3.4
Vocational training	23.5	44.8	23.8
Experience obtained	24.5	39.0	72.8

A statistical analysis dealing with this sort of information has been developed by the authors along the present lines[3]. The main conclusions arrived at are:

Within occupation comparison:

"Cadres": education significantly more important than training, education more important than experience, no significant difference between training and experience.

Technicians: both training and experience very significantly more important than education, no significant difference between training and experience.

Workers: experience more important than training as well as education, training more important than education.

As to comparisons among occupations:

Education: significantly more important for "cadres" than for technicians, more important for technicians than for workers.

Training: more important for technicians than for "cadres" as well as workers, no difference between "cadres" and workers.

Experience: significantly more important for workers than technicians as well as "cadres", more important for technicians than for "cadres".

This last statement, as mentioned above, seems to contradict the information presented in Table 9, where the order is the opposite: age more important for "cadres" than for technicians and more important for technicians than for workers. Possible inter-correlations between age and level of education and training could provide an explanation for the observed contradiction.

[1] Authors' own translation

[2] No proper translation could be found

[3] Jacques Hallak (IIEP) and Jan Versluis (ILO), Education, training and recruitment policies of employers: the case of Panama and Rwanda, IIEP Research Report No. 28, Paris, IIEP, 1978 (mimeo).

The same tests were performed for private and parastatal sectors separately, with exactly the same results for both. There were differences, however, when separate tests are applied for firms that are predominantly foreign-owned and firms that are mainly Rwandan-owned. Among firms which have 50 per cent or less foreign capital, the difference between the importance of education for technicans is not significantly different from that of experience, while for the total group of establishments it is. Among firms with more than 50 per cent foreign capital, the recruitment criteria for "cadres" are not significantly different, predominantly foreign-owned establishments pay as much attention to education as to training or experience when recruiting "cadres". The more correct formulation may, however, be that they pay as little attention to each of the criteria because most of them do not really recruit "cadres", the "cadres" being mainly foreign like the capital. For the same reason within this group of establishments a comparison of the importance of each of the criteria between "cadres" and the other two groups of occupations is not entirely meaningful.

5. The Leonor analysis

Recruitment patterns may be analysed not only on the basis of information provided by employers, but also by information provided by recent labour market entrants[1/]. Leonor, in his study on upper-secondary vocational-school graduates in Ayuthya, Thailand[2/] looks particularly at two types of information: duration of job search and first job earnings. In his "labour market map" he distinguishes four different situations:

> "1. Severely distorted labour market (long waiting period, high first-job earnings). The wage level is kept artificially high, particularly in the protected sector, for a fortunate few. But this is achieved only at a great sacrifice, e.g., prolonged waiting time and severe unemployment for the majority.
>
> 2. Surplus (long waiting period, low first-job earnings) ... Under heavy unemployment pressure, wages fail to rise.
>
> 3. Mismatchers' dream (short waiting period, low first-job earnings). Graduates are willing to accept whatever low-paying jobs are available. By indoctrination - whether by schooling, monastic experience, political ideology, etc., - the graduates are contented and accept whatever wages are fixed by employers or by law.
>
> 4. Shortage (short waiting period, high first-job earnings) ... This category is obvious. At full employment, the period of job search is merely frictional. An increasing scarcity of labour bids up the wage level; employers invest more in their workers, e.g., active job recruitment, on-the-job training, etc., and are willing to pay more."

Leonor then describes the labour market under consideration as one that has shifted from a surplus to a shortage situation and he concludes from his analysis that "the graduates of various vocational schools in Ayuthya, Thailand, had been facing different job markets at different times, giving the impression of changes taking place from time to time and through time. These market changes were partly but profoundly influenced by the schools. As such, labour markets appear as moving targets whose motion and trajectory are affected by schools as well as by many other factors. In this context, flexible schools guided by timely labour market information have the better chances (than the sluggish ones) of hitting that seemingly illusive target whose bull's eye is within the vicinity of short waiting time and high first job earnings."

The implications for policy-making given by Leonor are that, "if indeed the vocational schools have some causative influence on waiting time and first job earnings of their graduates, then these schools can be used as policy devices for altering these variables. The general line of action ... is to minimise waiting time and maximise first job earnings. This mini-maxi principle is achieved by making the school responsive to the demands of the labour market. By responsiveness is meant the flexibility of the school to reallocate their staff and other resources towards the production of skills which are in short supply".

[1/] Obviously, supply and demand elements are not strictly separated in this chapter.

[2/] M. D. Leonor, Jr., Duration of Unemployment and First Job Earnings: Upper Secondary Vocational School Graduates, Ayuthya, Thailand, 1970-1974, ILO, Working paper, WEP 2-18/WP 12.

III. COMPARISONS WITH OTHER DATA

1. Singapore

An interesting comparison can be made between the recruitment practices as expressed by employers and earnings as a function of the characteristics of the individuals. Pang has run regressions of earning on a number of individual characteristics for each of the job categories for which the employers were interviewed about recruitment criteria. It would take us too far to present all the regression results, but some of the main conclusions as drawn by Pang[1] may be quoted:

(a) High-level manpower

The earnings functions for this category "indicate a strong association between age, education and earnings. Parental background as measured by father's and mother's education are significantly related to earnings. There are reasons to believe that parental schooling affects earnings in an indirect manner through its effect on the worker's education. The coefficients for the firm and work-experience variables are also rather sizeable. Good health does not add significantly to earnings. The coefficient for English-language education is more than twice that for all workers ($293 versus $128), suggesting that English-language proficiency is a considerable asset to high-level job-holders especially if it facilitates entry into a large firm. The coefficient for firm size, it will be noted, though small is also significant. Except for hours of work, the coefficients for employment variables are either small or not significant."

When education is expressed in dummy variables, the coefficients are significantly large for pre-university, college and university education i.e. a manager who has undergone a pre-university, college or university education rather than a secondary education is very handsomely rewarded.

But having a vocational education does not add to earnings. On the other hand, not being educated or having only a primary education does not reduce earnings. The relationship between earnings and education for high-level manpower appears to be asymmetrical: post-secondary education (except vocational education) contributes substantially to managerial earnings. On the other hand, not being educated in a secondary school is no handicap, which suggests that lowly-educated managers and proprietors in manufacturing firms have other qualities of leadership and entrepreneurship which make up for their lack of formal schooling, qualities which are not adequately captured by the survey".

As far as the education variables are concerned these results correspond with the employers' recruitment criteria reported earlier. However, in two cases inconsistencies do exist. While employers indicated a preference for high-level manpower to be married and of Chinese race the variables race and marital status are not found to have a significant influence on earnings, i.e. although employers say they prefer married Chinese, they do not pay them better than unmarried Malays.

(b) Clerical workers

The firm survey indicated that nearly 90 per cent of firms employing more than 50 workers have a decided preference for clerical workers with a secondary education. In no other occupation is the revealed preference for a specific level of schooling so strong. Clerical jobs are typically cited as being most likely to experience a steady inflation of minimum educational qualifications. As the supply of educated workers expands relative to the number of clerical jobs, educational credentials are raised to keep applicants down to a manageable level. Job access is thus limited by increasing entry educational qualifications which gradually become unrelated to productivity. The regression results suggest "that clerical workers with only primary education make about 15 per cent less than secondary-educated workers. But clerical workers with pre-university and college education are not significantly better rewarded. As most employers feel that secondary education is adequate for clerical jobs, clerical workers with pre-university and some college education are over-qualified and their over-qualification goes unrewarded. By the same token, although university graduates are also over-qualified, employers appear to be prepared to compensate them - and rather substantially too - for their paper qualifications. Whether this implies a case of conspicuous comsumption by employers is hard to say. But it does suggest that a university degree is of considerable monetary value to an individual even if he only takes up a clerical job. For clerical workers, an English-language education is only slightly helpful (its coefficient is significant at the 10 per cent level in

only one of the regressions) in raising earnings. This is surprising until we take note of the fact that while English is very much the language of government and industry, the spoken language at the workplace is normally a mélange of Singapore English, Chinese dialects and Malay, particularly among workers in sales and other jobs which involve dealing with the public.

The other two variables which are significant in all the regressions are marital status and foreign equity share. As far as marital status is concerned this seems to contradict the fact that employers had said in general that they did not have specific preferences regarding marital status for this category. On the other hand, although employers, especially in smaller firms, had expressed a preference for Chinese, neither race, nor firm size is found to have a significant influence on earnings, which may be due to precisely an intercorrelation between the two variables.

(c) Skilled and technical workers

Broadly speaking, the results for skilled and technical workers are similar to those for high-level and clerical manpower. Age and education strongly affect the earnings of skilled and technical workers. But the coefficients are smaller than for the first two occupational groups. One of the regressions "suggests that the education-earnings relationship is a non-linear, assymmetrical one. Having less than a secondary education does not adversely reduce earnings, and having post-secondary schooling (other than vocational education for which the regression coefficient is non-significant) is a definite monetary advantage.

Parental education does not affect earnings. Neither does race. Marital status again shows up as a significant variable. Married workers earn about 5 per cent more than single workers. English-language proficiency is not associated with additional earnings, an understandable result since much of workplace communication is carried out in a unique mixture of Chinese dialects, Mandarin and English. Health and the experience variables also do not contribute significantly to earnings." Again race is not found to be significant although employers expressed a preference for workers of a particular race. But as in the case of clerical workers, this variable may be negatively intercorrelated with firm size, another variable that does not have a significant influence on earnings. The significant influence of marital status on earnings is similarly inconsistent with the stated recruitment criteria of the large majority of the employers, who declare not to have any preference regarding marital status in this occupational category.

(d) Production workers

In this category, "workers with no schooling or with primary education earn significantly less than secondary-educated production workers. Vocational education again does not perform better than secondary education. Besides education, age, firm experience, hours of work are the only significant continuous variables affecting earnings. Firm experience, as a proxy for specific or inside training, is rewarded, in contrast to the findings for high-level, clerical and skilled workers. Employment variables turn out not to be good predictors of earnings. Once again, neither race, nor marital status is found to be significant.

In summary, education influences earnings for the different categories in a way that employers' recruitment preferences would make one expect. Yet marital status and race do not appear to influence earnings although employers had expressed a preference for these traits. Perhaps these traits are rewarded in other ways however than by higher earnings, e. g. by better promotional possibilities, a subject to be pursued in further studies.

2. Indonesia

What follows is an examination of the distribution of criteria/worker traits (education, age, sex) within certain jobs and for different firm types. Who is recruited for which occupations? Data by age, sex, education.

(i) Education: The average period of education (in number of years) varies from occupation to occupation. It will be noted that (i) the 'hierarchy' of occupations is relatively well expressed by the number of average years of education per occupation; (ii) the dispersion of the educational level between occupations varies from 1 for unskilled operators to 2.1 for managers and book-keepers; (iii) there is a wide dispersion of educational level within each occupation.

This last fact obviously may reflect the differences between time of recruitment, and between sectors of activity, characteristics of firms and their personnel policy. Let us take a few examples in order to illustrate this.

Table 12 Education (mean in years)

	5 years	5-7	7-9	9-11	11-13	13-15	15	Estimated total average
Managers	0	1	5	0	19	15	2	11.5
Technicians	0	5	7	17	0	0	0	9.0
Book-keepers	0	1	2	5	29	6	0	11.5
Secretaries	0	1	4	4	29	2	0	10.5
Supervisors	1	4	10	2	29	4	0	10.5
Skilled operators	12	24	12	6	14	0	0	7.5
Unskilled operators	18	28	4	4	1	0	0	5.5

- Variations by sector of activity

Whereas in textiles and hotels, the 'mode' of the statistical distribution of education for managers is 14 years, in construction and trade it decreases to 12. The average number of years of schooling for supervisors in Textiles is 9; in hotels 5; in trade 8 years and in construction as high as 12 years.

- Variations by size

It was found that large undertakings tend to be more demanding with regard to the educational level of their employees, that small firms tend to be less demanding with regard to the educational level of their employees or at least that there is a strong association between size and educational level of workers.

- Variations by status

It will be remembered that the survey distinguishes between individual firms, partnerships and limited companies. One would expect, for example, that individual firms would demand less education than, say, 'partnership' companies for the same occupation. For example, in textiles, the educational mean for foremen is 9 years in individual firms, and 10 years in 'partnership' companies.

(ii) Sex: For the seven occupations studied, there are 36 per cent of women taking all the firms together. However, it can be noted that (see Table 13)

- Some occupations are not open to women (e. g. technicians) probably for socio-cultural reasons;
- the percentage of women employed per occupation depends to a large extent upon the sector of activity; while 64 per cent and 78 per cent of secretaries are female in textiles and

Table 13. Percentage of females by sector and by occupation

	Textiles	Hotels	Trade	Construction
Managers	0	28	0	8
Technicians	0	0	-	0
Book-keepers	36	21	17	16
Secretaries	64	78	12	15
Supervisors	12	20	0	2
Skilled operators	58	1	0	0
Unskilled operators	55	3	35	2

hotels respectively, the proportion decreases to 17 and 16 per cent in trade and construction, partly because of the nature of the occupation, partly because of the higher "rate of activity" of women in Jakarta than in Padang;
- in textiles and trade, the higher the hierarchical position of an occupation, the smaller the proportion of women.

(iii) Age: Taking the number of workers by occuption in each firm, we computed the average age by occupation and by sector (see Table 14). The results deserve the following comments:

- Younger workers are concentrated in the low skilled/low status jobs, i.e. average age is lowest for unskilled operators. 'Managers' have the highest average age;
- the 'range' between occupations, while significant, is small: 7 to 12 years, probably due to the age pyramid structure of the labour force in Indonesia ('young labour'). The average age of managers is 33 to 38 years;
- differences between sectors are not very pronounced; nor is there a strong association between firms' characteristics and age of workers; however some significant correlations are found between managers, foremen, skilled workers and notably technicians and some firms' characteristics.

Table 14. Average age by occupation and by sector (in years)

	Textiles	Hotels	Trade	Construction
Managers	33	35	38	36
Technicians	27	27	-	33
Book-keepers	34	28	36	30
Secretaries	25	25	31	30
Supervisors	28	28	33	30
Skilled operators	24	26	30	32
Unskilled operators	21	24	27	29

In general, the distribution of worker traits appears to reflect the preferences of employers regarding the criteria for recruitment and promotion to various occupations. We can conclude that:

- the 'typical manager is a man of 35 years of age with more than 13 years of education, with 9 months of special training, but often without special training;
- the 'typical' technician is a man of 30 years of age with about 12 years of education with 6 months of special training, but in most cases without special training;
- the 'typical'book-keeper is a man - with a few exceptions - whose age ranges from 28 to 36 years with 12 years of education, often without special training or with 6 months' training;
- the 'typical' secretary in textiles and hotels is a women of 25 years of age and in construction and trade a man of 30 years of age; a secretary has received 12 years of education with little (3 months) or no special training;
- the 'typical'foreman/supervisor is a man, age 30, with 12 years of education and no special training (exceptionally 6 months).
- there is no 'typical' skilled operator really; the situation varies a great deal from sector to sector, partly because of the characteristics of the sector, partly because of the definition adopted in the survey, i.e. an operator who performs a complex task or who is just above the bottom category of occupations;
- nor is there a 'typical' unskilled operator for the same reason; yet average education would be less than 7 years and the average age around 25 years.

3. Panama

Who is recruited and for what job? Training, education, age and sex.

(i) Training: Here again, we compare statistical distribution of workers' traits with certain occupations in different types of firms. Table 15 shows the modal distribution for each occupation, the number of undertakings where the number of employees is maximum for the period of training.

Table 15. Professional training (modal distribution)

	Less than 3 months	3 months - 1 year	1 year and more	Nil
A Management	9	7	22	17
B Technical Staff	1	-	8	3
C Prod. supervisors	16	13	13	31
D Other supervisors	3	2	2	6
E Accountants	8	5	14	39
F Exec. secretaries	2	3	2	5
G Secretaries	6	6	7	42
H Skilled operatives	1	8	7	29
I Unskilled operatives	6	-	3	28
J Sales staff	7	-	3	11

It will be noted that the pattern is very different depending on the occupation, whether one takes account of the 'non-responses' or not. As in the case of Indonesia the majority of employees - whatever the occupation - have no professional training.

(ii) Education: Table 16 shows the distribution (in average years of education) for each of the occupations selected.

Table 16. Distributions for occupations selected

Average No. of years	Manage-ment	Techn. staff	Produc. super.	Other super.	Accoun-tants	Ex.Sec.	Sec.	Skilled operat.	Unskill-ed operat.	Sales Staff
≤5	2	0	0	1	0	0	0	2	4	0
5< ≤7	1	0	6	1	0	0	1	13	20	0
7< ≤9	2	0	17	3	3	1	5	13	10	8
9< ≤11	1	0	7	0	1	0	2	8	3	1
11< ≤13	7	2	24	4	23	4	33	20	0	11
13< ≤15	16	2	12	4	34	5	20	5	0	1
>15	28	9	9	1	6	2	2	0	0	0
Average for the whole number of observations	14.6	15.6	11,7	11,2	13,7	13.8	12.6	9.6	6,8	10.4
	57	13	74	14	67	12	63	61	37	21

It will be noted that (i) the 'hierarchy' of occupations depends directly on the number of average years of education (except perhaps in the case of management and other senior staff); that (ii) the dispersion of the educational level between occupations is from 1 for unskilled operatives to 2.3 for management; and (iii) that for each occupation, the average number of years varies according to sectors of activities and characteristics of firms. A few examples will illustrate this:

- Variations per branch of activity

Whereas two-thirds of the 'hospitals' record a modal educational level of 'full university' in the case of management, this proportion drops to 50 per cent in the food and agricultural industries and to 29 per cent for retail trade.

- Variations by size

A priori, one is inclined to think that large undertakings tend to be more demanding with regard to their employees - this is what would seem to be borne out by the analysis by size of the modal educational level for supervisors: 79 per cent of the small undertakings (less than 50 employees) report a modal educational level of 'full secondary and below' as against 6.7 per cent of the large undertakings (more than 200 employees). However, the relationship between educational level and size is not a simple one: it would not appear to be valid for all occupations. Large undertakings with more than 200 employees are more demanding with respect to their senior personnel (technical staff) and relatively less demanding (than small undertakings) with respect to their operative staff (and unskilled operatives in particular). Thus the policy of the large undertakings would seem to result in a wider span in terms of the educational level of their employees than is the case with small undertakings. In other words, the difference between the highest and lowest average educational level is smaller in undertakings with less than 100 employees than it is in undertakings with more than 200 employees.

- Variations by status

When one compares the policy of the 'multinationals' with that of 'limited companies', one observes that in the case of management 90 per cent of the multinationals report a modal educational level of higher education as against 75 per cent in the case of limited companies; for accountants and skilled workers, the percentages are respectively 16.7 per cent and 7.8 per cent, 12.5 per cent and 5 per cent. The status of the enterprise is unquestionably a determining factor of the educational level of the workforce.

To sum up: despite the small size of the sample, the analysis of the average educational level and its dispersion in the case of some well-defined and important occupations has shown that:

- there is no simple relationship between occupation and education but there is a parallel between the hierarchy of job categories and average period of training;
- the technical characteristics (sector of activity, size, and the organisational characteristics (legal status) of an undertaking do influence the average educational level of the employees.

(iii) Sex: Of the total number of employees in the ten job categories selected, all undertakings combined, 36.9 per cent are women. It will however be noted (see Table 17):

- certain occupations have a higher proportion of women than others, e.g. secretaries
- discrimination against women (at the management and technical staff level) would appear to be less pronounced in 'retail trade', 'transport' 'hotels-cafés-restaurants' and 'repairs' than in other sectors of activity;
- the sectors of 'textiles', 'H.C.R.', 'financial establishments', 'health' and 'domestic staff' employ on the average more women than the other sectors. The reasons for this are both economic (salary levels), sociological (belief in women's aptitude for certain tasks) and cultural (particularly in the service sector).

Table 17. Percentage of women

Percentage across (06 = women) (04 = total)	Food	Clothing	Electri-city water	Whole-sale trade	Retail trade	Transport	H.C.R.	Finan-est.	Insurance	Health	Repairs	Laundries	Other pers. serv.	i	Total all sect.	Number of employees
Sales staff	0	0		0	0				7.6		0	75.0		11.1	4.1	269
Management	16.7	0	0	17.6	42.9	33.3	33.3	8.7	0	0	33.3	0	0	34.2	12.7	102
Technical staff			0					23.0	0	33.3			0	31.5	11.6	199
Production supervisors	0	72.4	0	21.1	44.4	16.7	27.8	0		100.0	0	50.0	11.1	52.3	19.3	228
Other supervisors	0			0		0	16.7	100.0	60.0					67.5	25.0	20
Accountants	68.4	78.9	9.0	66.1	66.7	25.0	80.0	8.3	83.3	50.0	42.9	100.0	0	97.8	36.1	296
Executive secretaries	100.0			100.0	100.0		100.0	100.0			100.0		100.0	271.0	100.0	34
Secretaries	100.0	100.0	100.0	95.1	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	264.8	99.5	414
Skilled operatives	40.8	97.2	0	29.1	35.8	0	29.7	23.3	16.3	61.1	0	41.2	55.0	117.3	43.3	2 421
Unskilled operatives	33.3	100.0	0	31.3	21.4	11.4	70.5		0		0	100.0	9.1	56.4	20.8	1 410
All occupations	33.9	93.9	8.9	40.5	34.8	13.5	52.3	49.2	23.5	61.4	10.4	71.9	27.6	100.0	36.9	5 393

i = coefficient of differential selection = percentage in job category/percentage all categories.

Table 18. Modal age per occupation and per sector[1]

	Manage-ment	Technical staff	Production supervisors	Other supervisors	Accountants	Executive secretaries	Secretaries	Skilled operatives	Unskilled operatives	Sales staff
Food	3	-	2	2	2	2	2	2	2	2
Clothing	2	-	2	-	2	-	2	2	1	2
Electricity water	*	2	3	-	2-3	-	2	2	2	-
Wholesale trade	2	-	2	2	2	-	2	2	2	*
Retail trade	2	-	3	-	2	-	1	2	-	2
Transport	2	-	2	*	1	-	1	2	2	-
H.C.R.	*	-	4	2	2-3	*	1-2	3	2	-
Financial Est.	2-3	2	2-4	-	-	-	2	2	-	-
Insurance	3	2	-	-	2	-	1	2	1	2
Health	2	2	-	-	-	-	2	2	-	-
Repairs	*	-	-	-	2	-	1	2	1	2
Laundries	1	-	-	-	-	-	1	3	2	*
Other personal services	3	*	4	-	-	*	-	-	4	-

* Too wide a dispersion.

(1) 1 = under 25, 2 = 25-39, 3 = 40-49, 4 = 50 and over.

(iv) Age: Table 18 gives the modal age per occupation and per sector. In view of the lack of detail with these figures - neither the number of persons concerned nor the number of undertakings is specified, - comments have to be confined mainly to the broad trends, i. e.

- for the most part low-paid jobs are filled by those in the younger age-groups either because seniority is a prerequisite for higher posts e. g. supervisors, management, or because the age-pyramid for the labour force in Panama is not sufficiently dynamic to permit both an increase in the numbers of those at the top of the hierarchy and their replacement by those in the younger age-brackets.
- there is a 'cluster' around the 25-39 age-group. This is due both to the size of this age-group and also to the country's demographic and economic development. Without sustained economic growth to open up the market and increase its capacity of absorption it can be inferred that the difficulties which the younger generation experiences in finding a job are not about to disappear.

4. Rwanda

In the Rwanda case two sorts of analysis have been made of individual data which may be used for comparison with the recruitment criteria specified by the employers. The first is a comparison of average salaries between men and women. Within homogeneous categories according to level of education and experience (10 levels of education, 5 groups of experience, i. e. 50 different groups) average salaries are found to be significantly higher for males than for females (Table 19). This seems to coincide with the employers' preference for male personnel.

A second set of comparisons were made between age-groups (Table 20). Between age-groups differences in earnings are less pronounced. This results from an indirect control of experience as concluded in the Rwanda report[1/]. One may say that the employers show a preference for older personnel, but this attitude refers more specifically to the work-experience aspect, which is obviously correlated with age[2/].

The above conclusions are strongly confirmed by another part of the analysis, viz. the earnings functions[3/]. Both experience and sex are found to be significant determinants of earnings, i. e. employers not only state a preference for older male workers, they also pay them better than their younger or female colleagues.

In conclusion it may be said that the traits of workers preferred by employers are also the traits that contribute to workers' earnings.

[1/] Enquête 1977 sur l'emploi, op. cit.

[2/] Authors' own translation

[3/] For tabulations of all the regressions that have been run, the report must be referred to.

Table 19. Comparison of salary levels by sex

Qualifications		Average Salary				Significance[2]
Education and training	Experience	Men		Women		
No education	No experience	4 800	(3)	-	(0)	
	1 - 4 years	4 300	(43)	9 300	(0)	
	5 - 9 years	5 958	(50)	8 000	(2)	
	10 - 19 years	6 535	(57)	-	(0)	
	20 years or more	13 929	(51)	-	(0)	
Some vocational training	No experience	-	(0)	-	(0)	
	1 - 4 years	2 933	(3)	-	(0)	
	5 - 9 years	7 100	(12)	-	(0)	
	10 - 19 years	6 782	(11)	-	(0)	
	20 years or more	13 750	(10)	7 500	(1)	
On-the-job	No experience	5 639	(13)	10 000	(1)	
	1 - 4 years	8 687	(119)	7 000	(1)	
	5 - 9 years	10 480	(242)	6 700	(2)	
	10 - 19 years	9 954	(389)	9 250	(4)	
	20 years or more	10 540	(459)	-	(0)	
Accelerate vocational	No experience	7 112	(8)	5 300	(18)	
	1 - 4 years	8 272	(55)	8 950	(18)	
	5 - 9 years	9 895	(100)	10 815	(13)	
	10 - 19 years	13 607	(164)	12 033	(6)	x
	20 years or more	12 694	(47)	-	(0)	
Post-primary	No experience	7 300	(11)	6 157	(7)	
	1 - 4 years	9 165	(97)	7 934	(67)	x
	5 - 9 years	10 970	(132)	9 712	(25)	x
	10 - 19 years	13 177	(196)	11 550	(20)	x
	20 years or more	18 965	(40)	8 800	(1)	
Technician A3	No experience	7 850	(18)	9 550	(2)	
	1 - 4 years	11 308	(148)	9 988	(49)	
	5 - 9 years	14 522	(141)	11 032	(60)	x
	10 - 19 years	19 991	(171)	12 833	(48)	x
	20 years or more	26 353	(38)	15 633	(6)	x
Technician	No experience	10 747	(17)	8 900	(1)	
	1 - 4 years	13 851	(163)	11 755	(58)	x
	5 - 9 years	19 924	(88)	15 233	(30)	x
	10 - 19 years	30 525	(92)	20 824	(21)	x
	20 years or more	94 000	(32)	50 767	(3)	
Baccalauréate	No experience	37 900	(4)	15 100	(1)	
	1 - 4 years	21 421	(42)	13 690	(11)	x
	5 - 9 years	27 660	(23)	41 567	(3)	
	10 - 19 years	87 742	(19)	16 000	(1)	
	20 years or more	94 450	(8)	18 890	(1)	
License	No experience	53 740	(5)	-	(0)	
	1 - 4 years	26 002	(42)	19 950	(2)	x
	5 - 9 years	48 433	(24)	121 400	(1)	
	10 - 19 years	48 508	(24)	-	(0)	
	20 years or more	14 444	(15)	-	(0)	
Doctor	No experience	-	(0)	-	(0)	
	1 - 4 years	18 700	(9)	-	(0)	
	1 - 5 years	23 750	(2)	-	(0)	
	10 - 19 years	14 525	(4)	-	(0)	
	20 years or more	20 200	(2)	-	(0)	

1. Between brackets number of observations.
2. x Indicates a significant difference at 5 per cent significance.

Table 20. Comparison of salary levels by age group

Qualifications		Average Salary					Average Salary				
Education and training	Experience	Less than 20 years		Twenty years or older		Significance	Less than 25 years		Twenty-five years or older		Significance
No education	No experience	4 800	(3)	-			4 800	(3)	-		
	1 - 4 years	4 045	(35)	6 190	(10)	x	4 195	(40)	7 140	(5)	x
	5 - 9 years	5 663	(30)	6 545	(22)		5 810	(41)	6 882	(11)	x
	10 - 19 years	0 360	(5)	6 167	(52)	x	7 523	(26)	5 706	(31)	
	20 years or more	-	(0)	13 781	(52)		-	(0)	13 781	(52)	
Some vocational training	No experience	-	(0)	-	(0)		-	(0)	-	(0)	
	1 - 4 years	2 933	(3)	-	(0)		2 933	(3)	-	(0)	
	5 - 9 years	6 400	(8)	8 500	(4)		7 391	(11)	3 900	(1)	
	10 - 19 years	-	(0)	6 782	(11)		7 520	(5)	6 167	(6)	
	20 years	-	(0)	13 750	(10)		-	(0)	13 750	(10)	
On-the-job	No experience	5 327	(11)	7 067	(3)		5 562	(13)	7 500	(1)	
	1 - 4 years	8 630	(68)	8 727	(52)		8 582	(89)	8 932	(31)	
	5 - 9 years	10 576	(154)	10 235	(92)		10 625	(200)	9 683	(46)	
	10 - 19 years	9 670	(65)	1 004	(329)		9 896	(224)	10 052	(170)	
	20 years or more	-	(0)	10 334	(460)		-	(0)	10 358	(451)	
Accelerated vocational	No experience	5 600	(8)	11 350	(2)		5 600	(8)	11 350	(2)	
	1 - 4 years	8 104	(62)	10 327	(11)	x	8 459	(69)	8 100	(4)	
	5 - 9 years	10 096	(77)	9 797	(36)		9 969	(100)	10 246	(13)	
	10 - 19 years	19 048	(27)	12 514	(143)		13 671	(105)	13 358	(65)	
	20 years or more	-	(0)	12 694	(47)		-	(0)	12 600	(46)	
Post-primary	No experience	7 117	(17)	2 400	(1)		7 117	(17)	2 400	(1)	
	1 - 4 years	8 284	(149)	12 420	(15)		8 481	(155)	11 767	(9)	
	5 - 9 years	10 718	(124)	10 964	(33)		10 759	(146)	10 918	(11)	
	10 - 19 years	11 200	(26)	13 447	(187)	x	13 761	(131)	12 233	(82)	
	20 years or more	-		18 717	(41)		-	(0)	18 717	(41)	
Technician A3	No experience	8 020	(20)	-	(0)		8 020	(20)	-	(0)	
	1 - 4 years	10 802	(183)	15 300	(14)	x	10 929	(193)	13 425	(4)	x
	5 - 9 years	12 740	(144)	15 347	(57)	x	13 609	(188)	11 623	(13)	
	10 - 19 years	15 229	(17)	18 702	(202)	x	16 046	(141)	22 549	(78)	
	20 years or more	-		25 538	(42)		-	(0)	25 538	(42)	
Technician	No experience	10 550	(16)	11 400	(2)		10 644	(18)	-	(0)	
	1 - 4 years	13 360	(199)	12 764	(22)		13 293	(213)	13 500	(8)	
	5 - 9 years	22 369	(61)	14 833	(57)		19 061	(111)	13 457	(7)	
	10 - 19 years	21 000	(3)	30 636	(111)		28 455	(49)	35 658	(65)	x
	20 years or more	-	(0)	88 897	(33)		-	(0)	88 897	(33)	
Baccalauréate	No experience	14 733	(3)	61 250	(2)	x	33 340	(5)	-	(0)	
	1 - 4 years	20 767	(42)	16 190	(11)		19 596	(51)	25 450	(2)	
	5 - 9 years	40 878	(9)	23 211	(18)		29 525	(24)	25 700	(3)	
	10 - 19 years	16 000	(1)	87 742	(19)		104 681	(11)	59 067	(9)	
	20 years or more	-	(0)	104 944	(9)		-	(0)	104 944	(9)	
License	No experience	34 200	(2)	66 767	(3)	x	53 740	(5)	-	(0)	
	1 - 4 years	26 131	(16)	25 496	(28)		25 727	(44)	-	(0)	
	5 - 9 years	-	(0)	52 933	(24)		56 725	(20)	29 880	(5)	
	10 - 19 years	-	(0)	48 074	(23)		31 300	(7)	55 594	(17)	
	20 years or more	-	(0)	144 439	(15)		-		144 439	(15)	
Doctor	No experience	-	(0)	-	(0)		-	(0)	-	(0)	
	1 - 4 years	-	(0)	19 357	(7)		18 700	(9)	-	(0)	
	5 - 9 years	-	(0)	23 750	(2)		-	(0)	23 750	(2)	
	10 - 19 years	-	(0)	44 525	(4)		-	(0)	44 525	(4)	
	20 years or more	-	(0)	20 200	(2)		-	(0)	20 200	(2)	

x Indicates the case where the less young earn significatively more than the young.

5. The Hallak, Versluis algorithm

In an attempt to organize labour-force data in a way that may be hoped to provide better insights in the correspondence between education and the world of work, the present authors have developed a simple algorithm for establishing alternative occupational clusters[1/]. These clusters are defined in such a way that the empirical correspondence is maximized between characteristics of jobs and personal characteristics of workers. For technical details the research report must be referred to. Briefly, in this algorithm a coefficient of correspondence is defined, which lies in between zero and one, and which indicates the degree of homogeneity of occupational clusters in terms of the characteristics of the individuals who compose the clusters. The main individual characterist that has been used up to now has been the level of educational attainment. Applications have been made of data for four countries, Korea, Singapore, Sudan, and Thailand. In three cases a separate analysis was made for different age groups; the results are summarized in Table 21.

Table 21. Coefficients of correspondence for different age-groups

Country	Sex	Age group	Coefficient of correspondence
Sudan	both	below 30	0.617
"	"	over 40	0.702
Korea	male	below 25	0.704
"	"	over 25	0.821
"	female	below 25	0.589
"	"	over 25	0.833
Thailand	both	below 30	0.689
"	"	over 30	0.775

One consistent element that comes out of this part of this analysis reveals that the correspondence found between education and job characteristics appears to be higher for older than for younger workers. As the authors conclude : "... it may be hypothesized that this reflects changes over time in recruitment patterns". Even though the older workers would have had a longer period during which they could have changed jobs or have been promoted etc., educated manpower was scarcer and the level of education required lower and more homogenous when they were recruited than in later years. For the younger, educated labour being more abundant, the recruitment criterion could be "so much education or more", whereas at the time the now older workers were recruited it was "so much education". It must be emphasized that this type of analysis is still in an early stage of development. But the approach seems to be promising and especially once it will be possible to establish comparisons between classifications at different points in time, better insights may be obtained about the way in which recruitment patterns reflect labour-market conditions.

IV. AN AGENDA FOR FURTHER RESEARCH

In the preceding sections, we have presented some methods for studying the relationship between education and employment, focusing particularly on the rôle of education and training in access to employment. They are: employers and employment surveys on recruitment criteria; data from labour surveys and censuses analysed in such a way as to relate workers' characteristics and job characteristics; data on job demand. The kind of findings one can draw from these approaches were presented with some illustrative examples, i.e. how the rôle of education as a recruitment criterion varies according to the specification of the undertaking and with time; how employers' opinion is confirmed or contradicted with their real "personnel policies"; what proportion of workers' income can be explained by education; to what extent one can predict occupation profiles and how the changes occur over time, etc.

1/ Jacques Hallak (IIEP) and Jan Versluis (ILO), Correspondence between education and the world of work (An alternative way of looking at labour force data, with examples from Korea, Singapore, Sudan, and Thailand, IIEP Research Report No. 25 (Revised), Paris, IIEP, 1977 (mimeo).

The question is then where one goes from here; how one could improve these studies so that more precise policy conclusions can be drawn - and whether we need different data to achieve this improvement.

Looking back at the Hallak/Versluis algorithm, it is obvious that in spite of the usefulness of the finding that education requirement increases over time for specific occupations, we cannot infer any practical conclusions from this unless we know more about the factors which affect these changes over time. The well known assumption of credentialism can perhaps be tested by developing a model of analysis relating education requirement with supply or stock of educated labour. This model could draw from the experience gained with the Tinbergern-Correa model. The purpose would not be to develop an axiomatic theory for planning human resources, but simply to estimate the likely change in recruitment patterns, given our knowledge of the future of education supply. The data needed to work on this model are: in addition to labour survey and censuses, statistics on education planning which help to up-date our knowledge on the "education supply" since the last census.

In order to refine the findings on the rôle of education concerning access to various occupations, we need to be able to answer very specific questions regarding "which diploma or graduation helps entering into which occupation and how fast?" Studying such a question is obviously vital for both short-term training policies and for improving vocational guidance systems in the light of the changing conditions of the labour market. Surveys on recruitment can be useful, if some questions are added on the "demand of employers" by occupation and training; another appropriate way for getting the information needed is to look into the files of the "employment services" which include, in some countries, a wealth of information of the 'profiles' determined by employers for access to different occupations. Moreover, an analysis of these files over time would help to draw up some conclusions on the changing patterns of recruitment. It would be useful to try this exercise in one country in order to assess its validity.

Going beyond the problem of access to occupations, an issue which has preoccupied (and is still relevant for) human resource planners, is the comparative advantage of various systems of training for different occupations i.e. on-the-job training, technical-vocational training, informal training, apprenticeship schemes, etc. Many attempts were made to study this question and some useful findings are already available; for example there is a suggestion that while little relationship exists between education and income when entering the labour market (for some occupations), the increase in income over time may be more closely related to the length of training, thus affecting the rates of return of alternative modes of training. This suggests, that in order to assess more carefully the comparative impacts of systems of training, we need to go into career analyses; either through follow-up surveys, or on the basis of data provided from training institutions and/or studies of job histories. Normally these studies require a continuous investigation and data collection over a number of years. However, some attempts for overcoming these difficulties are made and the effort deserves to be pursued further: for example, one could study workers' files (either in firms, or in "employment services") or carry out a survey on workers of one 'age-group' and trace back the career history. In addition, in employers surveys some questions may be included that refer to this possible dynamic relationship between education and training and performance on the job.

Towards reducing educational inequalities in Zanzibar

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I. INTRODUCTION

1. Socio-political and economic development

It is imperative to start with a lengthy note on the socio-political and economic development of Zanzibar since, as Weiler (1976) argues, the development of an educational system is conditioned and determined to an important degree by the state of the social system as a whole and because the educational development and reform is limited to what the existing dynamics of social structure, political power and economic wealth permit.

The Republic of Zanzibar comprises two main islands of Zanzibar and Pemba and a number of smaller islands like Tumbatu, Panza, Fundo, Makongwe and others. Zanzibar island covers an area of 1,640 km. Pemba island covers an area of 970 sq. km. and lies 40 km. north of Zanzibar. The economy of Zanzibar is based on agricultural production with cloves as the principal cash crop earning 90 per cent of the total export value. Three quarters of the cloves are grown in Pemba.

The total population is estimated to be 450,000, with an ethnic distribution of 76.5 per cent Africans, 15.7 per cent Arabs and 1.7 per cent Asians. The Africans have been primarily small subsistence farmers, the Arabs being owners of big plantations of cloves and coconuts. The Asians have been primarily rich urban businessmen.

The Islands of Zanzibar and Pemba have been ruled by the Arab Sultans since the end of the 17th Century. In 1890 these islands became a British protectorate and retained this status until 9 December 1963, when they became "Independent".

It is important to note here that when the British assumed protectorate powers over Zanzibar the treaty was entered into between the Arab colonialists and the British. The Africans were left in an obscure legal position and this state of affairs had during the condominium period nursed great suspicion on the part of the Africans against the Arab and British designs. Conflicting Afro-Arab views led to the formation of political parties; the Arabs formed the Zanzibar Nationalist Party (ZNP) in 1954-56 and sought self-government. The Africans formed the Afro-Shirazi Party (ASP) in 1957. The Arab minority won the 1963 elections and so the British handed the political power to the Arab oligarchy. This state of affairs set the clock back to the pre-British-Arab Protectorate Treaty, leaving the African with empty assurances that he would not be molested by his Arab rulers. The Independence Day was bitterly opposed by the Africans. The opposition gained momentum and culminated in the violent Revolution of January 1964 successfully executed by ASP.

On 26 April 1964 Zanzibar united with Tanganyika to form the United Republic of Tanzania.

2. Educational development

Before 1964 education in Zanzibar was provided in two types of schools: government schools and private schools. The private schools belonged to some racial and religious organizations. By and large most of the schools were built in urban areas and the community schools were entirely located in towns.

Education was organized at three levels: kindergarten, primary and secondary. For post-secondary the candidates had to go outside the country. Kindergartens and community schools were primarily non-African. Basic (primary) education was seven years.

II. THE INCIDENCE OF INEQUALITY

At Independence inequality in educational opportunity could be subdivided into the following: inequality in entry into the school system, inequality in vertical mobility, survival and success at the end of an educational level.

Regarding inequality in entry into the school system: first, there was a general inequality in participation. The school enrolment ratio was 34.6 per cent. General participation opportunity was constrained by the number and distribution pattern of schools. There were very few school places available as compared to the number of school-age children. The pattern of distribution of schools caused regional disparities in the opportunity of participation, for most schools were built in towns and the few that were built in the rural areas were unevenly distributed. So there were both rural-urban and rural-rural disparities. Regionwise, there were proportionally fewer schools in Pemba than in Zanzibar. There was also a considerable degree of disparity in the participation amongst boys and girls. Of the school-age boys 48 per cent were enrolled, while only 27 per cent of the girls entered school. Here it might be convenient to point out that the ratio of boys to girls of school age in Zanzibar is a one-to-one relationship. Even with the few places available some boys and girls of school age were not allowed by their parents to go to school - especially the beloved ones because of some cultural inhibitions among such parents. Some parents strongly hold that the school spoilt their good children by deculturalizing them. As for girls, especially those in the rural areas, their parents' attitude towards girls' education is very often negative. Furthermore, we could identify racial inequality in opportunity of entry, for almost all the Asian and Arab children of school age entered the school system, while only a small minority of the African school-age children got enrolled. This state of affairs was consequent upon the system of educational administration described above.

Regional, sex and racial disparities in opportunity of vertical movement, i.e. movement from one grade to another and from one level to another, were very pronounced. The ratio of girls to boys of an age cohort was inversely related to the grades and levels of education. This situation was more so in the rural schools than in the urban ones. Greater rate of drop-out amongst girls could be attributed inter alia to two factors: negative attitude of parents towards girls' education and early marriages. In rural areas as soon as a girl reached puberty the parents withdrew her from school or/and made her get married. Some of the married girls would be withdrawn from school by the husbands and some of those who were not withdrawn often dropped out after becoming pregnant.

There was also distinct sex and racial discrimination in participation in different types and levels of education. Technical education, which was a post-primary provision, was a taboo to girls and some of the trades were offered on racial basis.

Entry into secondary school was determined by performance in the Entrance Examination and ability to pay school fees, which increased from one grade to another. Since the best teachers and good and adequate teaching-learning materials were in urban schools, the urban pupils invariably performed better during and at the end of their school cycle. And since the majority of the urban schools were for Asian and Arab children and extra high tuition could be afforded only by children of rich parents, the Asian and Arab children performed better than the African children. This meant that the Asian and Arab children had a better chance of moving from one grade to another and also from one level of education to another.

III. POLICIES AGAINST INEQUALITY

In its Party Manifesto ASP sought to eliminate all sorts of inequalities in opportunity of education that had existed during the British and Arab regimes. So after the Revolution several measures were taken by the Revolutionary Council to eliminate the inequalities:

Immediate nationalization of all schools was effected and pupils were reshuffled to ensure that children of all races were represented in all schools.

In September 1964 a bold revolutionary measure was taken to make education free for every child during eleven years. So basic education was raised from seven-year primary education to a three-year secondary education. In other words, Zanzibar had declared Universal Secondary Education (U. S. E.) compulsory as early as 1964, contrary to the mainland which managed to declare universal primary education only in 1975.

Many schools were consequently built, not only to accommodate increased enrolments but also to reduce the distance travelled by children from home to school to 3 km. as a maximum. Also, in order to enable every child to be in a school for eleven years, the Std. 8 Secondary school selective Entrance Examination was abolished.

In its Three Year Development Plan, 1978/79-1981, the Revolutionary Government has determined to raise the basic education to 12 years by 1981. This is yet another step towards giving more free education to every child.

In order to reduce the rate of drop-outs amongst girls, the government has stipulated that any person intending to marry a schoolgirl shall be allowed to do so on condition that he will not withdraw his wife from schooling.

It is also a Government policy now that girls can join any technical trade.

IV. PROBLEMS OF IMPLEMENTATION

The bold decision to give free eleven-year education to all children was not without some setbacks. The step ensured equality in entry in the school system but actually enhanced inequality in performance and final success.

To meet the increased enrolments many untrained ex-form-III teachers were recruited. At present these untrained teachers constitute 70 per cent of the total teaching force. The problem also arose of school equipment and furniture to the extent that almost half of the student population has to do without a desk to write on, and more than half of the schools that ought to have science laboratories do not have them. These factors, together with others, have had a very serious negative impact on the quality of the education offered. If one could use the Form Four National Examination Results as an indicator of quality of education and success it would suffice to cite two cases: In the 1977 National Examination which is administered for both mainland and the isles, the best school in Zanzibar was the 99th in performance. Of the students who sat for the National Examination in 1974 only 11 per cent passed, and the figure rose to 29 per cent in 1975 and fell again to 25 per cent in 1976. Again regarding success in the National Examination one observes distinct regional disparities, e. g., for the years 1974, 1975, 1976 Pemba students on average did better than the Zanzibar students. In Zanzibar Island pupils from schools in the Southern region did better than those in the North. The same pattern appears in Pemba South and North. Table 1 helps to illustrate regional disparities in success in the National Form IV Examination.

However, to solve some of the problems in the Three Year Development Plan 1978-81 Government has given top priority to training of teachers and provision of adequate furniture and equipment. During the plan period the Ministry of Education will spend more than 50 per cent of the total development budget on the training of teachers and provision of furniture and school equipment.

One could say that since entry into grades beyond form four is determined by success in the National Form IV Examination the poor performance in this exam has limited the chances of further education for the majority of the pupils who sit for the examination and to some extent does enhance regional disparity in the opportunity to higher education.

Table 1. National Form IV Examination Results (percentage of those who passed the examination)

(1) Region-wise

Region	Percentage of those who passed 1974 %	1975 %	1976 %
Zanzibar Urban	12	14	19
" " South	14	28	25
" " North	11	18	10
Pemba South	19	22	23
Pemba North	20	35	24

(2) District-wise

District	Percentage of those who passed 1974 %	1975 %	1976 %
Zanzibar Town	15	12	18
" " West	9	16	19
" " South	16	30	21
" " Central	10	25	29
" " North A	17	14	11
" " North B	4	21	10
Mkoani	18	19	21
Chake Chake	20	24	25
Konde	17	38	25
Wete	23	32	23

V. CONCLUSION

In conclusion it is fair to say that while Zanzibar has succeeded in eliminating inequality in opportunity of entry into the school system and to a great extent the inequality in vertical movement at least up to Form IV, it has in the same process enhanced inequality in performance and success during and at the end of the school cycles.

The distribution of resources for educational expansion in East Java[1]

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Development plans always espouse equal educational opportunity for all citizens. But allocations for the expansion of educational opportunity often favour selected groups. By building imposing facilities, designing them for irrelevant curricula, and locating them in the most developed areas, new schools can be made to limit educational opportunity to a small segment of the population. Since large investments are being made in educational expansion in Indonesia, we wanted to see if there is a relationship between the allocation of funds and the pursuit of equal educational opportunity across geographic units within a province. This paper examines the allocations for new school construction between 1974 and 1976 in East Java, the most populous province in Indonesia. The analysis that follows does not tell us whether the schools built are appropriate for the population they are supposed to serve. Neither does it deal with the characteristics of the individuals newly served by the expansion of educational opportunity.

We hypothesized that if equality of educational opportunity is really an important goal this importance will be seen in the way funds are allocated. Districts (kabupaten and kotamadya) which have lower participation and continuation rates in primary and secondary schools will receive larger allocations than districts which are near or above the target rates in the five-year plan. Also, poorer districts will tend to receive larger allocations than richer ones.

According to Pelita II, Indonesia's second five-year plan, one of the major goals in education is to create wider and more equal educational opportunity as one guarantee of social justice.[2] In the plan, this goal is translated into three targets. By the end of Pelita II in 1979 it is expected that:

- 85.2 per cent of the 7-12-year-old age-group will be in school
- 85 per cent of the primary-school (SD) graduates will be accommodated in Class I of the junior-secondary schools
- 81.3 per cent of the graduates of the three-year junior-secondary schools will be accommodated in Class I of the various senior-secondary schools.

Even though these three targets relate to the absorptive capacity of the education system and not to the number of graduates it produces, the government considers their achievement vitally important. Judgements about how well the education sector has done in Pelita II will depend on whether or not the target rates are achieved by 1979.

In order to achieve the ambitious enrolment targets in Pelita II, massive investments have been made in educational expansion since 1974. At the primary level there has been a presidentially-decreed building programme commonly known as the SD Inpres Program and implemented by the Department of Internal Affairs. This programme had built 16,000 six-classroom schools through

[1] Part of this document has been published in the "Bulletin of Indonesian Economic Studies".

[2] Rencana Pembangunan Lima Tahun Kedua, 1974/75-1978/79, Vol. III, p. 140.

1976 and funded another 15,000 new schools in 1977 and 1978. The funds for the expansion of junior- and senior-secondary schools have come from the development budget. In 1974 and 1975 new construction of secondary schools consisted of a small number of vocational schools, a number of prototype development schools, and laboratories for all state-run general-secondary schools. Only in 1976 did the government initiate a general programme to invest in new secondary schools and classrooms. The number of additions in fiscal year 1977/1978 have been even greater than those in 1976/1977, despite Indonesia's present financial difficulties. The allocations for East Java for these two years have been:

Level of schooling	1976/1977	1977/1978
General Junior Secondary School (SMP):		
- new schools	10	19
- new classrooms	130	165
General Senior Secondary School (SMA):		
- new schools	1	4
- new classrooms	45	40

The increase in opportunity for secondary-school education in East Java is even more impressive, if the government's efforts are combined with the expansion of private schools at this level. In East Java between 1971 and 1975 enrolments in private junior-secondary schools increased by 137 per cent, in private senior-secondary schools by 79 per cent, until in 1975 private schools accounted for more than 40 per cent of total enrolments at both levels. There has clearly been a great increase in educational opportunity. However, a great increase in the number of public and private school places does not necessarily mean that those places have been distributed equitably.

In order to see just how far allocations for new schools construction are supporting the goal of equal educational opportunity we have asked two questions: (1) Have allocations of school construction funds been distributed to the districts (kabupaten and kotamadya) according to their present levels of educational opportunity and economic prosperity? (2) To what extent have allocations begun to have an impact on levelling out educational opportunity across districts?

In order to answer the first question the participation and continuation rates for the 37 kabupaten and kotamadya in East Java were correlated with per capita allocations for school construction. In addition, per capita allocations were correlated with the 37 districts' per capita rate for the development tax (IPEDA for "Iuran Pembangunan Daerah"). This tax is assessed on all villages, based on each village's estimated productivity. IPEDA is generally accepted as a simple, but still representative, indicator of economic well-being[1/]. The data on educational opportunity and economic prosperity are presented in Table 1, the data on per capita allocations for school construction in Tables 2 and 3.

Because the SD Inpres programme was started in 1974 it was possible to examine whether or not it has had an impact. But the question on the impact of new school construction on equality of opportunity has been impossible to analyze for secondary education. At the secondary level the investments in new school construction before 1976 are too few and too concentrated for us to seriously examine their impact. Thus, this paper does not include an analysis of the impact of the junior- and senior-secondary school building programmes.

The analysis that follows shows that the equity in the allocation of building funds in East Java varies widely across the three levels of schooling. At the primary level the desired hypothesis is true: poorer more educationally deprived districts have received larger allocations. At the junior-secondary level there is no conclusive evidence that any kind of district is being favoured, while at

[1/] For a description of IPEDA see Anne Booth, "IPEDA - Indonesia's Land Tax" in Bulletin of Indonesian Economic Studies, March 1974 (Vol. X, No. 1). In a conversation with Ms. Booth in 1975 she agreed that in East Java IPEDA is a fair indicator of economic prosperity because, unlike outside Java, the tax is administered and collected quite fairly.

the senior-secondary level the districts that are already the most well-off educationally are receiving the largest allocations. An analysis of the data for each level of schooling is presented below.

In each of the sections that follows a general description of enrolments and the respective building programmes precedes an analysis of the data in Appendix Table 1. Each section ends with some comments on the factors influencing the conclusions that have been reached during the analysis.

I. Distribution of funds for primary school construction - SD Inpres Programme

There were about two million children aged 7 to 12 in the secular primary schools in East Java in 1973. Another 700,000 children attended religious primary schools (Madrasah Ibtidaiyah). These two groups together were almost 59 per cent of the total age-group, a long way from the 85.2 per cent enrolment target for 1979. Many of the schools were housed in dilapidated buildings that had not been built as schools, while many, particularly in the cities, were overcrowded. Since the SD Inpres programme was designed to increase the number of children in school, the instructions for the programme each year have clearly stated that the new schools were for children who had not yet found places in existing schools. In other words, the transfer of children already in run-down, overcrowded schools to the new schools is discouraged. However, in 1975 a sizeable budget was added in each province for primary school rehabilition. Between one-half and three-quarter million rupiahs (US$1,250 and $1,900) have been allocated for the rehabitation of each of 3,619 primary schools in East Java (including some religious and private schools). This effort has not directly assisted in expansion of educational opportunity and is not included in the discussion that follows.

Of the 16,000 new state schools built under the SD Inpres programme between 1973 and 1976, East Java has received 3,363 (21 per cent) as its allocation. The breakdown of six-room school allocations and funding is as follows:

Phase I	: 1973/74	1438 schools	7234.5 million rupiah
Phase II	: 1975/76	1925 schools	15437.0 million rupiah

Phase I investments were budgeted at five million rupiah per school, including toilets, teachers' room, furniture, and water supply. Phase II provided the same facilities but budgeted eight million rupiah per unit. In many cases the schools that have been built cost more than was budgeted and the additional funds have been provided when needed either by the local authorities or by the community. In any case, the central government's investment has been substantial, amounting to about US$55 million in East Java alone.

How have the schools and the money been distributed? Appendix Table 1 lists the allocations per kabupaten and kotamadya for each phase. According to the 1973 decree (Presidential Instruction Number 10/1973) the units were allocated to districts based on the total number of children age 7 and 12 in each district who were not in school. A district's share of the total number of schools to be allocated was calculated based on the percentage of all unaccommodated children age 7 to 12 who lived in that district. The presidential instruction also stated that each district must receive enough units so that each sub-district (kecamatan) would get at least one unit. The following year, 1974, allocations were the same because each district was given enough three-room units to complete the schools that had been started the first year.

The presidential instruction for 1975 introduced a new criterion and dropped the two that had been used before. The new criterion was based on the projection of desired added enrolments between 1972 and 1978, the last full year of Pelita II[1/]. Each kabupaten and kotamadya was given a share of the total number of school units in proportion to the percentage of the total number of new pupils until 1978 that were expected to be accommodated in the district. Again, the second year's allocations were the same as the first year's.

[1/] The word "desired" is used advisedly here. Added enrolments were calculated by projecting what enrolments would be in 1979 if the 85.2 per cent enrolment target is achieved and then present enrolments were subtracted from this projection. The difference is "desired added enrolments."

In both phases of this primary-school building programme allocations to the sub-provincial level were calculated and finally decided by the central government. However, in 1975 the experimental regional planning office for education in the East Java Office of Education and Culture designed a more sophisticated, though still rudimentary, method of allocation within districts and assisted district officers in applying the method. There is some evidence to suggest that this exercise may have helped allocate schools to villages more effectively so that initial enrolments in the newest schools have been somewhat higher than in those built in the first phase[1/].

The criteria for allocating new primary schools that were used by the central government were described above. The resulting allocations of new schools to districts have furthered the more equitable distribution of educational opportunity at the district level. First, allocations have been made so that kabupatens with lower participation rates in 1973 have tended to receive larger per capita SD Inpres allocations. When participation rates in 1973 were correlated with per capita investments by district over the period 1973-1976, the correlation coefficient was -. 39 (statistically significant at the . 02 level of significance). Lower participation rates in 1973 have meant greater allocations of new schools. Given the goal of equalizing educational opportunity, this is as it should be.

A similar comparison was made between the allocations for this period and the per capita development tax assessment (IPEDA) for the districts in 1976. Again the correlation was negative and significant (r= -. 41). If per capita IPEDA assessment is accepted as a measure of economic well-being, then it can be concluded that the poorer districts (low IPEDA per capita) have tended to receive larger per capita SD Inpres allocations. This result, too, shows that the school allocations are fostering the achievement of Pelita II's goals.

But what about the results of these allocations? If they have made a difference, it would be expected that the variation in participation rates would be less in 1976 than it was in 1973. Also, the participation rate for the province should have improved. Let us look at the results.

Total primary school enrolments in East Java declined by 2. 8 per cent in 1971, by 2. 6 per cent in 1972 and by 1 per cent in 1973. With the implementation of the SD Inpres programme in early 1974 enrolments started to increase even though most of the new schools were not ready for use until almost the middle of the year. Yearly increases since 1973 have been as follows:

Year	Additional pupils	Percentage Increase
1974	65 000	2. 8%
1975	216 000	9. 0%
1976	244 000	9. 3%

The absolute and percentage increases in enrolments each year have grown. Still the increase in participation rate between 1973 was only 1. 4 points, from 58. 6 per cent to 60. 0 per cent. Population increase and lack of a building programme for religious schools certainly contributed to the small improvement in the participation rate of only 1. 4 points. According to a population projection based on the 1971 census done by the Provincial Planning Unit, the 7-12-year-old-age group grew from 4. 6 million in 1973 to 4. 8 million in 1975 (about 3. 5 per cent). And, second, religious primary schools (Madrasah Ibtidaiyah) were not included in the building programme even though they account for about 25 per cent of the total primary school enrolments in East Java. In fact, between 1973 and 1975 enrolments in Madrasah Ibtidaiyahs declined from 687, 000 to 672, 000 pupils (2 per cent).

Even though the total change in the enrolment ratio for the province is small, some districts are improving their participation rates while others are not. If the data are looked at in these terms, there is a clear indication that the SD Inpres programme is having an impact on participation rates. Table 1 presents a comparison of the districts and municipalities based on whether they have received per capita allocations that are over or under the median for all areas and whether their participation rates have improved or declined between 1973 and 1975. The table is as follows:

1/ See "Hasil Penelitian Evaluasi Penggunaan Model Pengalokasian SD Inpres 6/75 di Jawa Timur" ("Results of an Evaluation of the Use of the SD Inpres 6/75 Allocation Model in East Java") by the PROPPIPDA (Regional Educational Planning Project) in the East Java Office of the Department of Education and Culture, June, 1976, pp. 8-10.

Table 1. Comparison of Kabupaten/Kotamadya according to changes in participation rates, 1973-1975, and SD Inpres investment per capita

Rp./Capita for SD Inpres / Change in Participation Rate	Above Rp. 600*	Below Rp. 600	Total
Increase	16	8	24
Stable or decrease	3	10	13
Total	19	18	37

* median = Rp. 600 per Capita

It is clear from the table that areas receiving more than the median per capita allocation of 600 rupiah are more likely to have increasing participation rates (chi-square significant at the .05 level). The correlation coefficient for changes in participation rate and per capita allocation yielded a similar significant result ($r = +.42$), suggesting that not only are those who are getting more improving faster, but also the more a district or municipality is receiving the greater the increase in its participation rate.

Improvement can also be seen in the variation across districts in 1975. The highest and lowest participation rates in a district in 1973 were 83 per cent and 25 per cent (see Appendix Table 1). In 1975 the extremes were 85 per cent and 31 per cent. Using a t-test for statistical significance, it was found that although the maximum and minimum did not change much, there is a significant difference in the variation (as measured by the variance) between 1973 and 1975. It seems clear that the higher uniformity in participation rates among districts in 1975 (i.e., lower variance) is a direct result of the SD Inpres programme.

In sum then the SD Inpres programme has had a positive impact on improving the equality of educational opportunity among kabupaten and kotamadya in East Java. First, money for new school buildings has been allocated so that the areas with the lowest participation rates have received the most assistance. Second, poor areas (as measured by IPEDA per capita) have tended to receive more assistance. And, finally, the variation in participation rates among districts has become more uniform. Poorer, less-educationally-developed districts are increasing their participation rates faster than richer districts with higher initial primary-school participation rates. Thus, in general SD Inpres allocations to the kabupatens and kotamadyas are on target.

II. DISTRIBUTION OF FUNDS FOR JUNIOR-SECONDARY SCHOOL (SMP) CONSTRUCTION

We have seen that during the early 1970s primary-school enrolments in East Java were declining. During the same period junior-secondary-school enrolments were showing a steady increase. Between 1970 and 1975, enrolments increased 60 per cent, from about 207,000 to 323,000 pupils, but the majority of that increase was due to the expansion of private-school enrolments. Private-school enrolments increased by 83,000 pupils, accounting for 69 per cent of the increase. Not until 1976 did the government make a significant investment in the expansion of state junior-secondary schools. Instead, in the first two years of Pelita II (1974 and 1975) sizeable investments were made in rehabilitating existing state SMP buildings and equipping all these schools with laboratories.

In 1976 with the SD Inpres programme well under way, most rehabilitation work done, and strong pressure for expansion of the junior-secondary-school system, the central government initiated a building programme for junior-secondary schools. As its share of the programme, East Java was allocated 10 new SMPs and 130 additional classrooms that could be added to existing facilities. The equity of the allocation of these new schools and classrooms to districts in the province is analyzed below.

In conducting this analysis the following question was asked: Were the Pelita II goals on the improvement of educational opportunity fostered by the distribution of the 10 new schools and 130 new classrooms in East Java? To answer this question three forms of analysis were used: (1) a correlation was computed between per capita allocation and 1975 continuation rates (the same kind of comparison as made at the primary level); (2) districts and municipalities were categorized according to whether or not they are above or below the province - wide continuation rate and whether or not they received any allocation at all; and (3) 1975 continuation rates were correlated with the economic indicator used above, IPEDA per capita for 1976.

First, when 1975 continuation rates for the 37 sub-provincial units were correlated with per capita allocations for new construction in 1976, a correlation coefficient of -.12 was obtained. This very low correlation suggests that there is not much relationship between need for new facilities - a low continuation rate - and the provision of new facilities - per capita allocation of funds. Such a low correlation is even more disappointing if we take into account the discussion that preceded the final decision on allocations to the districts.

Initially, the East Java Office of the Department of Education and Culture planned to build 5 of the 10 new institutions in Surabaya. It was rationalized that, since only 60 per cent of the children who had applied for admittance to state SMPs in Surabaya for January, 1976, could be accommodated, there was a large portion of the population that was not being served. After considerable discussion, initiated by the new planning unit, two items were agreed upon: (1) most of the remaining 40 per cent had probably found places in added or private SMPs since these schools account for 77 per cent of the total SMP enrolments in Surabaya anyway and (2) it is not clear how many of the total number of SMP applicants actually come from Surabaya. Also, among the districts and municipalities Surabaya already had one of the top three continuation rates - 86 per cent of the SD graduates could be accommodated in existing SMPs and vocational junior-secondary schools (see Appendix Table I). By comparison, only one kabupaten had a continuation rate above 70 per cent (Sidoarjo) while three kabupatens and one kotamadya did not have places for even 40 per cent of the primary-school graduates that they produced. Based on these arguments, the 1976 allocation to Surabaya was reduced to two new schools and 12 additional classrooms. Even with these changes the correlation between continuation rates and per capita allocations for all districts is very low.

As the second step in the analysis a more general comparison of continuation rates and receipt of allocations was made (see Table 2). In constructing the table only 33 sub-provincial units could be identified because the data on 4 municipalities was combined with their respective districts. In the table the 33 units are categorized according to whether or not they received any allocation and whether or not the 1975 junior-secondary continuation rate was above or below the province-wide average of 57.5 per cent. The results are as follows:

Table 2. Comparison of SMP continuation rates (1975) and receipt of allocations for SMP construction (1976) for 33 sub-provincial units in

CONTINUATION RATE 1975	ALLOCATION		TOTAL
	Yes	No	
Below Provincial average of 57.5%	20	2	22
Above Provincial average of 57.5%	6	5	11
T o t a l	26	7	33

From the table it can be seen that most sub-provincial units received some allocation. Only seven did not. Also, of the seven who did not receive money for SMP construction, only two of them, Lamongan and Ngawi, came from the group of 22 districts and municipalities that are most in need. It is clear that there is a relationship between having a lower continuation rate and getting some allocation of new classrooms or a school (chi-square is statistically significant at the .05 level). But, as we have seen, the size of that allocation does not seem to be related to need.

Thirdly, in the analysis of whether economic conditions are related to allocations it is also difficult to see how economic conditions have influenced the allocations. The correlation between IPEDA per capita, the economic indicator, and 1975 continuation rates was almost nil (r=+.02). Also, of the nine kabupaten that received new junior-secondary schools - and thus the largest allocations - five of them are generally accepted as among the most prosperous districts in the province. Of the other four, three are on the Island of Madura which is rightfully being given priority in many development efforts. In no way can it be concluded that, with the possible exception of the 4 kabupaten on Madura, the poorer districts are being given more attention than the richer ones.

The results of these three analyses of junior-secondary-school building allocations for 1976 is not as positive as the analysis was for primary education. Districts with a low percentage of their primary-school graduates being able to continue on to junior-secondary school in the district did not receive priority in receiving funds last year. However, there is some indication that at least almost all of the needier districts received some assistance. In addition, there is no sign, except in Madura, that the poorer districts are being emphasized in allocations. The best that can be said is that at the junior-secondary level extra attention is not being paid to the richer districts where a larger percentage of the primary-school graduates already have a chance to continue. In general, then, Pelita II goals do not seem to have influenced the East Java Office of the Department of Education and Culture in its decisions on allocations of funds for junior-secondary school construction in 1976.

III. DISTRIBUTION OF FUNDS FOR THE EXPANSION OF SENIOR-SECONDARY SCHOOLS

The senior-secondary-school development programme has been similar to the junior-secondary-school programme. During the first two years of Pelita II the emphasis was on rehabilitation, provision of laboratories to state general-senior-secondary schools (SMAs), and the building of prototype development schools. In addition, vocational education has been expanded by adding technical schools in the provinces. Only in 1976 did the government make allocations specifically for the expansion of educational opportunity at the senior-secondary level. This was done by allocating new SMAs and SMA classrooms to the provinces. This section examines East Java's allocations for 1976, both for SMA expansion and for the continuation of vocational-school-building programme begun in previous years. Again, percentage of graduates continuing in school and IPEDA per capita are used to see if the goal of equal educational opportunity has influenced the allocations.

Before looking at this data, some background on Indonesia senior-secondary schools and enrolments in East Java is necessary. There are five kinds of senior-secondary school: a general high school (SMA) and vocational schools with four different curricula: business, trades (machinist, carpenter, etc.), home economics, and primary-school teacher-training. In East Java roughly 75 per cent of the graduates from junior-secondary school could be accommodated in the province's senior-secondary schools in 1975[1/]. In 1975 enrolments in East Java were as follows, by type of school:

1/ According to a report recently published by the East Java Office of the Department of Education and Culture (Laporan Hasil Studi Target Pelita II, December, 1976) the continuation rate is 77.8 per cent, but my calculations yield 74.5 per cent. It looks like the provincial report includes grade-one repeaters, not just new students, in the calculations.

General	:	Sekolah Menengah Atas (SMA)	52 400
Business	:	Sekolah Menengah Ekonomi Atas (SMEA)	25 900
Trades	:	Sekolah Teknologi Menengah (SIM)	29 600
Home Economics	:	Sekolah Kesejahteraan Keluarga (SKKA)	2 900
Teacher Training	:	Sekolah Pendidikan Guru (SPG)	27 500
		Total	138 300

The 1975 enrolments show an increase over 1971 of 28 per cent (about 28,000 students) with the largest increase occurring in the vocational schools (39 per cent), not in the general secondary schools (14 per cent). Growth in enrolments has clearly been much less spectacular than in the junior-secondary schools in the province, but it has been steady. To what extent has this growth been fostered by the construction of new school buildings by the government of Indonesia?

As stated above, up until 1976 the government had not began a full-scale programme to expand the level of educational opportunity at the senior-secondary level. Nevertheless, there has been much building done. Eighteen preparatory development schools with a general curriculum were built, 6 of these being used by existing student bodies and the rest constituting additional classroom space. But they were built more as prototypes for what future schools should be like rather than as extensions of the present system. In 1975 the twelve new schools had 3,600 students in two grades. In addition, between 1973 and 1975 all 51 state general senior-secondary schools (SMA) were rehabilitated and provided with natural science laboratories at a cost of about 800 million rupiah (US$1.93 million). And two STMs (one of which is for agriculture) and an SKKA were added in the province.

In 1976 the allocation for senior-secondary-school expansion in East Java was almost 850 million rupiah (a little more than US$2 million). Of this amount roughly 30 per cent went for the addition of new SMA facilities while the remaining 70 per cent was for the expansion of vocational schools. The largest recipients were Surabaya municipality (43 per cent), Jombang District (15 per cent), and Pamekasan District (12 per cent). Surabaya received 12 of the 45 new SMA classrooms the one new SMA, and a new vocational school for home technology. Jombang expanded its business high school and added 3 new SMA classrooms, and Pamekasan expanded a teacher-training school (SPG) and a teacher-training high school for sports instructors (SGOR). In all, sixteen of the thirty-seven sub-provincial units received an allocation (see Appendix Table 1).

A comparison was made between areas that received some allocation and those that received none at all to see if there was any difference in their level of educational opportunity as of 1975. The results are as follows:

Table 3. Comparison of senior-secondary school continuation rates (1975) and allocations for the expansion of senior-secondary schools (1976)

Senior-Secondary School / Continuation Rate, 1975	ALLOCATION		Total
	Yes	No	
Below the Provincial average of 77.8%	6	17	23
Above the Provincial average of 77.8%	10	4	14
Total	16	21	37

From the table it is clear that if a district or municipality was above the average continuation rate for the province (i.e., opportunity was already good), the chances were two to one that they would get an allocation. However, if they were below the average the chances were almost three to one that they would not get an allocation (chi-square significant at the .02 level).

In order to explore this relationship further the correlation coefficient between per capita allocations by district and the continuation rate in 1975 was calculated. At the primary and junior-secondary levels, we saw that this correlation was negative (lower continuation rates, higher per capita allocations, and vice versa). But at the senior-secondary level it was positive and very high ($r = +.55$, significant at the .01 level). In general, additional facilities were given to the areas that least needed them!

Also, the situation with respect to economic level of the regions receiving allocations is not as one would hope if equality of educational opportunity is to be achieved. The correlation coefficient between per capita allocations and IPEDA per capita in the districts and municipalities is as low as at the junior secondary level ($r = +.02$). This suggests that economic considerations have also not played a part in the allocations of development funds for the expansion of senior-secondary schools in East Java.

The most outstanding example of the bias in the allocation of funds for senior-secondary-school construction is the city of Surabaya. In 1976 Surabaya received 43 per cent of all funds for senior-secondary-school expansion even though existing facilities already accommodate 96 per cent of the graduates from the city's junior-secondary schools. If such a situation continues, it will further restrict access to senior-secondary school in favour of junior-secondary-school graduates who live in selected urban areas or who are rich enough to live away from home in an urban area for senior-secondary school. Also, the continuation of this bias in the allocations will further encourage young people to migrate to urban areas, with most of them not wanting to go home after they graduate. In sum, the 1976 allocations for the expansion of senior-secondary schools in East Java are in direct conflict with the objectives of the second five-year plan. Why is this so?

IV. CONCLUSION

This paper has shown that across three levels of schooling in Indonesia there are very mixed results in the degree to which allocations for school-building programmes have been based on need. The findings are summarized in Table 4.

Table 4. Summary of correlation coefficients of per capita school construction allocations and selected indicators of need by level of schooling for districts and municipalities in East Java

Indicators of Need/ Level of Schooling	Educational Opportunity	Economic Level
Primary School (SD)	-.39* (participation rate, 1973)	-.41* (IPEDA per capita, 1976)
Lower Secondary School (SLP)	-.12 (continuation rate, 1975)	+.02 (IPEDA per capita, 1976)
Upper Secondary School (SLA)	+.55** (continuation rate, 1975)	+.02 (IPEDA per capita, 1976)

*Significant at the .02 level
**Significant at the .01 level

The analysis demonstrates that, at the primary level, districts that need help most are getting larger per capita allocations. This evidence, coupled with the rapid increase in enrolments and the greater uniformity of primary-school participation rates since the programme started, provides dramatic evidence that the SD Inpres Programme is achieving its goals. At the lower-secondary level the data on allocations is inconclusive, while at the upper-secondary level, the districts which least 'need' further school construction are being given it.

Why have the SD Inpres allocations been so much more effective than Repelita allocations? First, as pointed out earlier, the SD Inpres funds come from a separate item in the development budget and not from general departmental allocations. Secondly, the programme has had a very large budget, sufficient to ensure that all kabupaten and kotamadya get some allocation every year; the question is thus not whether a district will get an allocation, but how much it will get.

A third reason for the success of the SD Inpres Programme is the symbolism attached to Presidential Decrees; both planning and implementation take on an importance that normal development programmes do not have. An anecdote illustrates this point. When asked why one village in East Java had no first-graders in the old school while the new SD Inpres school had close to the targeted first-year total of 120 pupils (three classes), the local headmaster replied that the old school was only the Governor's school. The new one was the President's.

Finally, centralised planning of the SD Inpres Programme has allowed objective application of quantitative criteria for allocation. This centralised planning is strengthened by the participation of staff from several ministries and the national planning agency. Thus, the planning process can utilise much better experience, attitudes, and mechanisms than exist in the 27 provinces.

The situation in the secondary-school-building programme is very different. One reason is that demand for lower- and upper-secondary schools has increased tremendously in the last five years, far more rapidly than at the primary level where well over half of the children, and certainly the more vocal half politically, are already in school. At the secondary level, the most rapid increases in demand have occurred precisely in those areas which are profiting most from Indonesia's new economic growth, the cities, and, in East Java, particularly Surabaya. No such similar pressure exists to expand primary schools in the cities because the bulk of the literate vocal population are not faced with a problem of finding places for their children. Since seven of the eight kotamadya in East Java already have continuation rates between lower- and upper-secondary of over 95 per cent, our analysis would seem to show that these cities do not need more schools, at least as compared with other kabupaten. Judged by the pressure which can be and is exerted on the provincial government by community and local leaders, however, the need in these cities is most intense. Local education officials find it difficult indeed to ignore these pressures, especially when the budget is not large enough to give each district a share. The primary-school allocation method allows some response to local political pressure by giving the more vocal districts an allocation while still reserving larger proportions for the needier areas. When there is not enough to go around, and when no clear allocation criteria exist, the more powerful - usually the least needy - will almost certainly be served first.

It should be recognised, however, that concentration of schools in urban areas is partly a matter of size of population and catchment area. Throughout East Java almost all upper-secondary schools are located in urban areas, usually the kabupaten capitals or the kotamadya. Many students also want to travel to Malang or Surabaya; these cities offer western forms of entertainment in great number and variety; and work after graduation and entrance to post-secondary education are easier to obtain.[1/] Also there is clear justification for locating vocational schools near available jobs;

[1/] Javanese parents' willingness, and even desire, to send their pre-adolescent offspring away from home as part of the child's upbringing may provide a supporting cultural impetus for the obvious urbanisation of secondary education in East Java. Cf. Hildred Geertz, The Javanese Family, (Free Press of Glencoe, Glencoe, Ill., 1961), pp. 116-117. Her observations on this phenomenon have been corroborated by my colleagues in East Java.

since 70 per cent of the development budget allocation for senior-secondary-school expansion in East Java in 1976 was for vocational schools, it is not surprising that expansion is occurring primarily in modernised urban areas, even though these areas can already accommodate all or almost all of their own lower-secondary-school graduates.

Another, and perhaps the determining, obstacle to the equitable allocation of secondary schools is that allocation decisions are made by the Provincial Office of the Department of Education and Culture. Planners and decision-makers in this office do not yet have the attitudes and skills necessary for rational planning, and they are very susceptible to local pressures in allocating schools. Even though an educational planning unit was established in the Provincial Office in 1974, the unit has still not effectively integrated itself into the daily operations of the rest of the Provincial Office. Thus, in 1977 decisions on allocations to districts for the new lower- and upper-secondary schools in East Java were still made by the inspectorates (bidang) in the Provincial Office. Only after the provisional allocations were made, did the planning unit initiate discussions and introduce data to argue for more equitable allocation. Outside the planning unit itself the attitude that data-based planning is necessary for effective decision-making has not yet found widespread support. Still, the inspectorates are increasingly turning to the planning unit for advice, and similar developments have begun with the formation of planning units in all other provinces.

Without the required tools for criteria-based planning, the Provincial Office has also been more susceptible to pressures from leaders in the province. More powerful areas such as Surabaya command both a greater political influence and a more skilled and persuasive planning apparatus than the provincial office of the Ministry of Education. Unlike administrators in the Governor's or Bupati's office, the provincial representative of the Department of Education and Culture is given the responsibility for allocating funds without the power, authority, or status to back up his decisions. Whatever he and his staff present to the Department in Jakarta is accepted as if it were a locally-made decision with valid educational reasons behind them.

With all these constraints operating on the provincial planning apparatus in education it might seem appropriate to conclude that this analysis is an argument for continued centralised planning in Indonesia. However, the analysis has only shown that the necessary capacity for successfully allocating schools so that they foster equality of opportunity does not yet exist at the provincial level. This does not mean that deconcentration of authority for this purpose is not desirable. It is, both because greater participation in decision-making is a correlate of development and because of Indonesia's size and its diversity in geography and peoples. However, for the time being development programmes that seek to improve quality of access to education and other social services may come into conflict with the goal of deconcentrating the planning of development, if the expectations placed on provincial personnel are greater than they can handle. As development programmes are designed and their implementation planned, this potential conflict needs to be borne in mind.

Appendix - Table 1. Per capita Ipeda, participation rates and per capita allocations by level of school and Kabupaten/Kotamadya, East Java 1973-76

Sub-Provincial Administrative Unit	Primary Schools (S. D.)				Lower Secondary Schools (S. L. P.)		Upper Secondary Schools (S. L. A.)	
	Ipeda Per Cap.	Per Cap. Alloc.	SD Participation 1973	Rates 1975	Cont. Rate	Per Cap. Alloc.	Cont. Rate	Per Cap. Alloc.
1. Sidoarjo	782	577	73	69	76	62	39	-
2. Surabaya (KM)	772	340	67	64	86	111	96	223
3. Jember	574	739	33	40	64	44	90	47
4. Situbondo	571	2 245	43	44	67	0	71	-
5. Banyuwangi	510	1 019	57	60	62	36	80	5
6. Malang	507	670	63	62	54	40	40	4
7. Bondowoso	502	965	39	40	61	0	87	18
8. Probolinggo x	497	864	61	48	x	x	15	9
9. Mojokerto x	476	583	71	70	x	x	9	-
10. Jombang	471	731	73	69	57	56	69	145
11. Lumajang	462	856	50	52	63	41	56	-
12. Kediri	455	417	73	71	42	66	30	-
13. Pasuruan	437	580	57	59	x	x	26	-
14. Gresik	401	1 002	76	82	58	0	52	11
15. Blitar	396	615	77	72	x	x	35	-
16. Madiun	391	784	59	62	24	11	33	-
17. Tulungagung	328	684	67	68	42	9	68	-
18. Nganjuk	328	757	74	75	49	100	68	-
19. Mojokerto (KM)	317	1 428	62	66	68	16	119	-
20. Madiun (KM)	305	1 312	78	75	122	0	115	285
21. Magetan	302	667	63	63	48	58	55	-
22. Ngawi	301	831	55	56	30	0	51	-
23. Trenggalek	274	598	73	75	38	25	73	-
24. Kediri (KM)	269	1 306	83	84	30	37	124	110
25. Tuban	253	1 298	54	54	41	44	54	-
26. Probolinggo (KM)	247	1 976	38	59	51	44	97	-
27. Malang (KM)	230	610	69	75	89	0	142	125
28. Blitar (KM)	206	2 029	72	75	50	7	142	163
29. Bojonegor	206	1 001	46	61	43	15	86	-
30. Ponorogo	205	630	56	56	49	18	94	9
31. Pacitan	194	1 019	73	72	40	28	47	-
32. Lamongan	192	1 047	68	75	52	0	57	-
33. Pasuruan (KM)	185	1 630	63	85	46	82	83	-
34. Bangkalan	183	1 354	25	32	53	116	70	5
35. Sampang	147	1 839	28	25	31	31	40	13
36. Sumenep	132	1 568	45	48	43	95	65	-
37. Pamekasan	123	1 102	39	75	45	159	118	210
Average	406	859	58.6	60.0	57.5	45	77.8	32

x Data on primary school graduates for these municipalities and districts of the same name is combined. Therefore, only one continuation rate could be calculated for each municipality/district (M + D).

Sources: (1) Education data taken from Statistik Pendidikan (both the 1973 and 1975 editions). Provincial Office of the Department of Education and Culture, East Java, and data of religious schools from Statistics provided by the Provincial Office of the Department of Religion. Population data is from a province-wide single-age population projection of the 7-12 age group using 1971 census data.

(2) (KM) stands for Kotamadya. All unmarked administrative units are Kabupaten.

(3) Pedoman Pelaksanaan Program Bantuan Pambangunan Sekolah Dasar, Vol. 4 1973, 1974, 1975 and 1976 issued by BAPPENAS, the National Planning Board.

(4) IPEDA data obtained from the population of each district and East Java Office of the Central East Java IPEDA Office, Surabaya. The total population is as of mid-1975 as reported by the East-Java Office of the Bureau of Statistics.

Notes on educational policy and the elimination of inequalities in access to education in Cuba

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Educational policy in Cuba is conducted by the State on the basis of a plan which is very closely linked to national economic planning.

The educational plan is essentially based on: (1) skilled manpower requirements for the country's socio-economic and cultural development; and (2) the social need for education, having regard to the material and human resources that the national economy can make available to education at each stage of development.

The planning periods are one year for the regular plan and five years in the case of the medium-term plan, coming into effect for the first time for the period 1976-1980.

Forecasts of the demand for skilled manpower for the various branches have been made for 1990, and others for 1985. At present, work is going ahead on economic development forecasts for the year 2000, which naturally include education. For the time being, use is made of various tables such as that of key personnel or manpower strength; technical indices concerning the equipment of enterprises; the skilled work-force saturation method, and others, in addition to population figures.

The plan comprises three levels: national, regional and local (municipal).

If they are to stand a good chance of success, educational development plans must be integrated plans covering the chief aspects relevant in one way or another to economic activity. The student intake and its movement is a very important basic indicator. It must also include an assessment of requisite educational personnel numbers and training; planned installations and maintenance; financial resources; the quantity and quality of facilities needed; application of the main achievements of science and technology in the field of education; scientific research linked to education; requirements regarding specialists, with the structure of specialist fields; national and regional population increase; distribution of a network of Education Centres throughout the country in accordance with population groupings and economic units; the number of specialists needed in each special field for several years and the economic need to train them in the home country, or abroad in the case of a small number; the degree of concentration or of decentralization of the number of centres providing specialist training; internal effectiveness of the subsystem; the size of investment in education; the flexibility of the material base of study for adaptation to the changing situations necessitated by scientific and technological progress; the training of personnel specializing in planning and forecasting for higher education, so as to combine theory and practice in education, etc.

The function of the State is to direct systematic education in order to obtain the all-round education of the pupil, the school being regarded as the chief link in education, which is thus relevant to the entire community and begins within the family. It is for the State to make institutional provision for a single, continuing and dynamic process serving the common interests of society as a whole.

Education is conceived as being linked to life. Instruction is combined with production and research, on the basis of the principle of the indissoluble bond between study and work.

The actual provision of free education and its extension to all sectors of the population, without any kind of discrimination, are essential prerequisites for its democratic and humanistic nature.

Education should constantly be directed towards the full instruction of the pupil on the basis of the most advanced educational science and the historical experience of the education personnel of the country in question. In the case of Cuba, education and scientific research rest on firm principles pertaining to the laws and categories of materialism and the theory of knowledge, as regards their logic and methods.

For us co-education and its practical application for all levels and types of education is essential to promoting awareness of and respect for the rights of the individual, whatever his or her economic and social position, race, sex and place of residence (town or country). The national system of education hinges on two lines of action: the regular system for pupils in the corresponding age-groups (who combine study and work); and the parallel system for workers who engage in study.

In the implementation of the State's educational plans, it is essential that the broadest sectors of the population should participate actively, through the social organizations, in order to ensure analysis, discussion, supervision, problem-solving and support in respect of such plans.

Both the central machinery of the State and the organs of the people's power and the social organizations follow, in their management of education, the general guidelines provided by the Communist Party of Cuba and stemming from its Congress.

The principle of equality in the right to education is embodied in the Constitution of the Republic, which has been in force since 24 February 1976. Article 3 provides that: "The Socialist State ... as the power of the people, in the service of the people, guarantees... that no child shall want for schooling, for food and for clothing...". But the right to education, in addition to being a consitutional principle, is a major practical problem requiring enormous effort and considerable resources for full application. For instance, to meet the substantial increase in secondary enrolment, more centres of education had to be built during a five-year period than in the previous seventy years.

Twenty-five years ago half the children and young people aged from six to sixteen years did not attend school. The situation now is that 92 per cent study and over 98 per cent are aged between six and twelve.

The accelerated construction of modern secondary and pre-university schools in rural areas, of secondary schools in towns, of technical schools and of universities, together with the production of millions of textbooks and other study materials, has entailed enormous investment for an underdeveloped country which has also been sustaining an economic blockade for close on twenty years.

Investment in education, both material and for the training of large intakes of teachers, is spread throughout the country, with due regard to population groups, to their growth rates and to the location of the main productive forces of society and their medium and long-term development prospects.

The remotest parts of the country have for the first time been provided with modern educational facilities, whether primary, general secondary or higher level. Likewise, the opening of new university-level centres has gathered speed and there has been a substantial improvement in their regional distribution. In 1959 there were only three universities in the whole country (Havana, Las Villas and Oriente). Now there are already 36 higher education centres with a total student enrolment of nearly 140,000, as against only 15,609 in 1956/57.

Taking all levels of education, the enrolment for the 1958/59 academic year was 811,300 and for the 1977/78 year 3,539,500, which is 4.4 times as many.

The total enrolment forecast for around 1980/81 is 3,639,700, with big increases in secondary and higher education and decreases in the absolute figures for primary pupils, depending on the elimination of educational retardation and on the demographic characteristics of the country, where

the population growth rate in recent years heralds a trend towards greater stability at the lowest levels than during the 1960s.

Education has now achieved its objective of universalization at the primary level (six classes) and the way is already mapped out for its gradual achievement at the succeeding levels of education. An enormous effort is being made to ensure that virtually all workers obtain their six classes as an objective of the parallel system in the forthcoming decades.

Cuba at present devotes eleven times more resources to education than in 1958/59. The cost of education in 1975 already, capital investment included, amounted to 874.6 million pesos. The budget of the Ministry of Education for capital spending in 1959 was only 79.4 million pesos.

Before the huge impetus given by the Socialist Revolution to education in these last twenty years, the greatest inequality lay in the social and economic situation of the family in a class society. Education was in part private and accessible only to the children of well-to-do people, namely, the middle class, the landowners and the most comfortably off section of the lower-middle class.

State schools were open to the lower strata of society, but even in these schools matriculation and books were very expensive. In addition, such schools were very few in number and unevenly distributed throughout the country. There were of course no school meals or snacks for poor children, or scholarships.

Hand in hand with socio-economic (class) inequalities went others, mostly stemming from the former. There were inequalities, for instance, between town-dwellers and those living in rural areas, between boys and girls, and between Whites and non-Whites (mainly Blacks and Mulattos).

The ratio of classrooms to the number of inhabitants, as between town and country, was extremely unequal. There were accordingly vast differences in school attendance figures between town and country, and they were almost nil in the most remote parts of the mountainous regions.

Sexual discrimination was very marked. Racial discrimination, based on the colour of the skin, was also very considerable. Although officially there was no racial discrimination in State schools, it was common knowledge that the Blacks had far less access to education and had to overcome more obstacles than Whites in order to enter higher levels of education. But it is very important to point out that generally speaking the Black person lived under much more adverse economic conditions, which made it hard to decide whether the prime factor was purely racial discrimination or economic discrimination.

The approach to these problems adopted by the Revolution was that education is a basic human right and that, consequently, the right to education is a right of the entire people and not just of part of it.

Thus in the last twenty years systematic steps have been taken to give education to the entire population within as short a time as possible. All these steps, directly or indirectly, constitute factors which, gradually and ever faster reduce the enormous inequalities which formerly existed. At the same time, the process of overall social development gathering momentum and affecting the whole of society has a marked effect on the educational process and paves the way for the full elimination of inequality.

From the very outset of the revolutionary process, we proclaimed absolute equality (de jure and de facto) between all human races and between men and women. Likewise, economic measures were adopted which contributed rapidly to raising the living standards of the most disadvantaged sectors of the population, such as the elimination of unemployment, urban reform and land reform. In addition, the spirit of improvement was encouraged throughout society as a social and moral duty also constituting a factor in itself for bringing about better living conditions.

With regard to education itself, far-reaching social, cultural and educational measures were taken. These included: the establishment of free education at all levels, from primary to university and post-graduate education; free access to all requisite study facilities and materials; a constantly increasing flow of publications for education and the launching of an audio-visual industry for education.

Further measures were the incorporation in education of 10,000 teachers not employed in 1959 and the opening of training schools for primary teachers and of training institutes for secondary and pre-university teachers (see Annex); reform of higher education and substantial changes at the lower levels; a vast school-building plan for all levels of education; opening of classes in all parts of the country, including places farthest from population centres.

There was also the introduction and subsequent expansion of a big scholarship scheme entitling the pupil to free accommodation, clothing and board during his studies.

Education was made compulsory as far as the sixth class, and the obligation is now being extended up to the third class (completion of general education).

Education has been democratized so as to give all pupils of appropriate ability access to all classes. In addition, special education centres have been established for those with physical or mental handicaps preventing them from attending normal classes.

Technical and vocational education was introduced for the training of middle-level technicians in a wide variety of branches who will subsequently be able, at their places of work, to continue higher studies.

The inequalities were not all eliminated at the same time, nor with the same ease. Free education did away with the main inequality in access to education and provided a firm basis for eliminating the other forms of inequality remaining. But it was clear that children in towns and children in the country were not up to the same standard of education. The quality of teachers was uneven from one part of the country to another. Subjective factors weighed heavily in the balance. The view parents took of the need to educate their children differed from place to place, and even more so according to the sex of the child.

Broad dissemination, ideological factors and the schooling of parents themselves by means first of literacy teaching and then of the parallel system of adult education played a decisive part in this, in addition to application of the compulsory education act. For several years now, there have been no more primary-age children outside the education system. This has required a great deal of effort and investment, but it is the fruit of the sheer development resolve of a socialist revolution in a developing country. At the secondary and higher levels the increase has been a notable one and will be even more so in the next few years.

Education is nowadays viewed by all (parents, children, Government and community at large) as an essential ingredient of living and as a basic right, but also as an elementary duty of the citizen. Socio-economic differences no longer have any effect whatsoever on equality of access to any level of education.

There are no further quantitative differences between town and country either, owing to the scholarship scheme, to the greatly increased school-building activity in country areas, to the realization by teachers of the need to teach throughout the country and not just in the towns, to the on-the-spot training of teachers; to the establishment of basic secondary and pre-university schools to be attended by children from the towns as well, under the combined study and work scheme; to the establishment of higher education centres in various parts of the nation, taking account of the dispersal of productive forces and regional population distribution, and so forth.

It is important not to forget, however, that there are still qualitative differences between town and country as a result of the age-old lag of the latter. These differences are being worked on constantly and, in the course of time, will be completely evened out. For several years already, the bulk of educational investment has been going to the countryside rather than the towns.

At the primary level, there is no inequality of access between girls and boys. At other levels, there is still a slight measure of discrimination against women of marriageable and child-bearing age, but the utmost is being done to ensure that these factors do not prevent women from completing their studies in the same number of years as in the case of men.

Racial inequalities disappeared at the very start of the surge forward in education produced by the revolution, and nowadays the subject is not even mentioned in Cuba for want of the slightest problem in this respect.

A concluding comment may be appropriate on the structure of specialized branches and the career desires or preferences of children. In a society like ours, with development in full swing, there are a great many opportunities for young people wishing to go on to higher studies, so that their interest largely coincides with that of society. But that does not mean that the nation needs exactly as many specialists in each branch as the number of young people who would like to qualify in it.

Hence it is absolutely essential to draw up a national plan incorporating as many options as possible and to reconcile, so far as the country's economy permits, such factors as: forward manpower demand by branch and region; requisite facilities for specialist education; teacher training by special field; present and projected population figures; dispersal of productive forces throughout the country; trends in the aspirations of young people, with due regard to habits acquired, family influences, social recognition of each field of specialization, and so forth.

This plan forestalls the later frustration of graduates unable to find work in their special field and many other consequences typical of societies not planning their development. It will also enable preventive work to be carried out with young people at the lower levels, their interest being directed to specific branches requiring new forms of specialization, and so on.

The ideological factor plays a fundamental part here in our society since the upshot is that the young person is happy to be studying something that is necessary to his country and even to other countries and peoples to whom he may offer his assistance.

Cuba's specialist education plan does not take account of national factors alone, for the system features inputs and outputs from and towards foreign education systems, as regards both Cuban students studying in other countries and foreign students undergoing courses of study in Cuba, together with Cuban graduates serving in other countries for specific periods. These aspects are of vital importance to international co-operation.

It may be said in conclusion that inequalities in access to education at all levels can be overcome only when peoples strive to eliminate inequalities besetting society as a whole.

Assessing the equalization potential of education

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I. INTRODUCTION

That prodigious economic inequalities exist in virtually all of the developing countries of the capitalist world is a fact that hardly needs documentation. Typically, a very large portion of the populations of these countries live at subsistence levels, while a small elite command income and wealth that enable them to live their lives in palatial luxury. In between is a relatively small middle class that has risen above survival levels, but that is precariously susceptible to inflation and underemployment or unemployment while being far removed from the lofty and relatively secure situation of the much smaller, wealthy elite. Typically, the poorest 40 to 60 per cent of the population in these countries is receiving only 10 to 15 per cent of the national income, while the richest 20 per cent is receiving about 40 to 60 per cent and the richest 5 per cent is receiving about 20 to 40 per cent. [1/]

Few independent observers would find such disparities to be equitable. But, there is less agreement on how the distribution of income and economic welfare might be improved. In the last two decades, two economic strategies have been asserted as a basis for creating greater equality. First, it was assumed that a high level of economic growth would lead to a 'trickle-down' of the growth dividend to the poorer segments of the population. Such a presumption had both the empirical support of cross-national studies of the income distribution as well as the theoretical support of neo-classical economics. In a landmark study on the relation between the distribution of income and per capita income levels, Kuznets found a U-shaped relation [2/]. Traditional societies with relatively low levels of income and modern, industrial, capitalist societies with high per capita income levels showed more nearly equal distributions of income than those in the early stages of capitalist transformation. It was presumed that the process of capitalist transformation would require a level of capital accumulation that could be achieved only through rising inequalities. Given an equal distribution of income at a very low per capita level, all income would be allocated to consumption with little or no savings formation. Further, there would be little incentive for entrepreneurship with its attendant inventiveness and risk-taking unless the potential rewards to the entrepreneur were substantial. Thus the explanation asserted that inequalities were necessary to establish rewards for entrepreneurship as well as to provide the source of savings for the process of capital formation necessary for economic growth.

Although inequalities would rise through the initial processes of capitalist transformation, the longer-run situation was expected to be one of rising equality in that much of the growth would 'trickle-down' to the poorer segments of the population. First, such growth would increase the demand for labour, reducing unemployment and underemployment of the masses. Second, the process of capital formation would create technological advances in production that would increase the productivity of labour with a resultant increase in earnings. Finally, an increasing portion of the population would shift from the relatively unproductive agricultural sector to the more productive modern

[1/] See the data presentations in Adelman and Morris 1973, p. 153 and S. Jain 1975.

[2/] S. Kutznets 1955

sector where higher productivity and wages prevailed. Thus, both historical evidence and economic theory argued for vigorous strategies of economic growth as a solution to the problem of inequality.

A second and concomitant strategy for addressing economic inequality was the expansion of schooling. Schooling was assumed to contribute to the formation of human capital by providing the skills and productive behaviours that would increase labour productivity[1/]. To the degree that the economic returns to schooling investment were equal to or greater than those to investments in physical capital, the expansion of schooling would be an integral part of a strategy for economic growth. But, more than this, the expansion of schooling and educational opportunity was expected to have a powerful and direct effect on the creation of greater economic equality. At the very least it was expected that an improvement in the quality and amount of schooling of illiterates and those with the least education would tend to reduce the surplus of 'undereducated' persons competing for agricultural and unskilled positions with a resulting increase in wages at that level due to a tendency towards tighter labour markets. In contrast, the increases in the supply of more highly educated persons attributable to the expansion of enrolments would tend to reduce the relative wages for educated persons vis à vis less-educated ones by expanding the labour supply at higher educational levels.

Of course, the combination of expanded schooling in conjunction with policies to promote rapid economic growth was considered to be the best palliative of all for adressing inequality. With both effects operating on the distribution of income, it was expected that rises in per capita income would take place simultaneously with reduction in inequality in the distribution of income. But, by the mid-1970s it became apparent that the historical data of Kuznets and the predictions of neo-classical economic theory had not been achieved for most of the developing countries of the world. In such countries as Brazil and South Korea with their prodigious expansions of schooling and rapid rates of economic growth, there has been little evidence of an improvement in the distribution of income [2/]. In fact, studies of Brazil, Peru, and Mexico suggest rising inequalities in the distribution of income over time, despite rapid schooling expansion and economic growth [3/]. Longitudinal comparisons of income distributions in other developing societies also suggest little or no improvement or some deterioration [4/].

At the least, we have reached a new maturity with respect to equalization policy in recognizing that the income distribution of a society is not determined by the simple and mechanical effects of economic growth and the rises in school enrolments. Further, there appears to be a large margin of economic growth that is not associated with rising equality, in spite of educational expansion and greater equality in the distribution of education. The political and economic institutions of a nation, the rôle of multinational capital, the rôle of the government in promoting investment and high profits and providing for repatriation of capital, the legal status and stage of development of trade unionism, the degree of monopoly concentration of capital and employment, and the extent of government employment are but a few of the factors which will influence the distribution of income.

Educational planning and inequality

But, if the age of innocence has passed with respect to the view that educational expansion will create powerful equalizing social and economic forces, a new dilemma is posed for the educational planner. If educational planning is to be done on the basis - at least in part - of its impact on equalizing adult outcomes, some attempt must be made to ascertain what is the likely equalization effect of different educational alternatives. The purpose of this paper is to address this need by constructing a methodology that might be useful in assessing the potential or limit of particular educational plans for creating a more equal distribution of adult earnings. By obtaining such evaluations, it will be possible to

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[1/] G. Becker 1964; T. W. Schultz 1961; J. Mincer 1970. An evaluation of the empirical support for the human capital approach is Blaug 1976

[2/] A. Fishlow 1972 reviews the recent experience in Brazil, and Adelman and Robinson 1978 address the South Korean situation.

[3/] See the review of these countries in Carnoy 1978 and Carnoy et al., 1976.

[4/] Longitudinal comparisons for many countries can be found in S. Jain 1975.

provide a more realistic picture of what can be achieved in terms of alleviating adult inequalities, while also enabling a ranking of planning alternatives with respect to their equity implications. This effort might be viewed as a first step in setting out a general method for undertaking such evaluations.

The subsequent presentation will be organized as follows. First, we will survey briefly some theories of the relation between education and the distribution of earnings. Second, we will outline a set of principles and a methodology for assessing empirically the effects of education on the equalization of earnings. Third, we will show how this approach can be used to simulate the equity potential of different educational policies, and finally we will demonstrate some results that are illustrative of the types of analyses that might be addressed by this methodology.

II. EDUCATION AND THE DISTRIBUTION OF EARNINGS

In general, there are three views of the relation between education and the distribution of earnings. Each view has quite different implications for the expansion and equalization of educational outcomes and their impacts on the distribution of economic results. The human capital view perceives of education as an investment in skills of individuals. [1/] Assuming perfectly competitive markets for services and products and factors of production, higher skill levels will translate into higher productivity and earnings. Accordingly, the distributional impacts of educational expansion on earnings will depend on the relative supplies of individuals with different amounts of human capital as well as the structure of demand by employers. Presumably, individuals will invest in education up to that point where the present value of the additional earnings is equal to the present value of the costs that are incurred. Firms will utilize particular levels of educated labour according to their relative wages and productivities. The expansion of the educational system should have an equalizing effect on earnings by reducing the supply of less-educated persons and increasing the supply of more-educated ones, other things being constant. More generally, the human capital model would predict that for any earnings structure, the expansion of schooling accompanied by a reduction in qualitative and quantitative inequalities in educational results would tend to reduce the inequality of earnings.

However, two types of evidence have raised challenges to the human capital predictions. First, throughout the world there is a tendency towards greater equality in educational outcomes and towards substantial expansion of schooling enrolments without an obvious effect on the distribution of income or earnings. [2/] Second, in many countries the increase in schooling has seemed to be accompanied by a rise in the level of education required by employers as well as the educational levels of the unemployed [3/]. Accordingly, an alternative explanation of the relation between education and the distribution of income has emphasized education as a certificate for employment. According to Thurow, education represents one of the principal devices for placing individuals in a

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1/ For a review, see Mincer 1970.

2/ Compare the data among age-cohorts in Kotwal 1975 on educational patterns with the data on income distribution of Jain 1975. Psacharopoulos 1978 has presented statistical evidence across nations showing a tie between greater educational equality and income equality. However, one must be sceptical that such cross-sectional evidence provides predictive value for what will happen in individual nations as education becomes more equally distributed. The cross-sectional and cross-national data of Kuznets 1955 on the U-shaped relation between income and equality has not been supported over time. Typically, such studies ignore the fact that the degree of educational equality and income equality are governed by different forces among countries rather than all countries moving along a similar developmental spectrum. Also see Chiswick and Mincer 1972.

3/ International Labour Organisation 1976: pp. 50-52 provides a discussion of the educated unemployed on a world-wide basis. For a consideration of "overeducation" see R. Freeman 1976 and R. Rumberger 1978. A dialectical explanation is found in H. Levin 1978. Other explanations for rising educational requirements of employers are I. Berg 1970; H. Braverman 1975; and L. Thurow 1975.

job queue. [1] Instead of a process of wage competition as reflected in the human capital model, there is a process of job competition in which the most educated persons are chosen for the highest paying and most productive jobs. The productivity of jobs is relatively fixed in that it is determined primarily by such factors as technology, organization, and capital investment rather than the specific talents of the worker. However, more-educated workers cost less to train than do less-educated workers, and this is the reason that employers choose the most educated person that they can attract.

Under the job competition approach, the educational requirements for jobs will rise as the average level of education in the job queue rises. That is, a worker can improve his position in the queue and his prospective earnings only by obtaining relatively more education than others in the queue. Thus, while education can serve to redistribute opportunities among individuals by altering their positions in the job queue and among jobs, it can not change the productivity and earnings of the jobs themselves, which remain relatively fixed. Accordingly, education can be used as a means of individual mobility without affecting the overall distribution of earnings or opportunities.

A related view of the relation between education and earnings is reflected in theories of labour market segmentation [2]. These theories argue that the effects of education will depend upon the distribution of educated persons among different labour markets. Labour markets are considered to be disparate in their functioning, with profound differences between primary and secondary jobs. Primary jobs are those which are stable with substantial amounts of capital per worker and which have well-articulated career ladders and training opportunities. Secondary jobs are more likely to be temporary and seasonal with less capital and little opportunity for career mobility. Depending upon the race, sex, social class origin, and geographical location of the individual, he or she will have greater access to one of these segments. In particular, white males of European background from middle- or upper-class origins in urban areas will have the best opportunities to obtain primary jobs, and education will be associated with higher earnings and career advancement in this segment. In contrast, non-whites, females, and persons from lower-social-class origins will be relegated primarily to the less stable and lower-paying opportunities in the secondary labour market, with little opportunity to acquire new skills or to advance. In that market, education yields very little economic advantage. The precise nature of different theories of labour market segmentation and their implications for the distribution of earnings and the relation between education and earnings will vary. However, they challenge the view that investment in human capital yields similar returns to individuals according to their productivity in the labour market as long as there are a number of discontinuous labour markets and the probability of participating in any one of them is not random.

The most complete challenge to the human capital interpretation of education and the distribution of earnings is that of the Marxists. Marxists view education as a means of reproducing the social division of labour for capitalist work enterprise that enables the capitalist to extract a surplus from the worker. [3] Schools are viewed primarily as a means for training individuals to compete for individual advancement, job security, and earnings increases by teaching them how to behave in the corporate, capitalist workplace. Just as students are divided against each other in the competitive process of schooling, so are workers divided against each other in the competition of the workplace. Earnings differences in the firm are determined primarily by the structure needed to provide incentives for stable work behaviour and loyalty as well as to legitimate hierarchical differences in authority. To a large degree the legitimation of these differences is established in the school, where similar structures of authority and power prevail.

Accordingly, while differences in earnings may be associated with differences in education, the differentials are not functions of worker productivity but rather organizational requirements for obtaining predictable labour output from the workforce that will permit the maximum extraction of profit or surplus. As with the credentialling model, rises in educational attainments or equalization of such attainments will not necessarily create more nearly equal earnings among workers as a class, although individuals receiving more education will be likely to have higher earnings than those

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[1] L. Thurow 1975.

[2] Edwards, Reich, and Gordon 1975; Carter and Carnoy 1974; Doeringer and Piore 1961; Bluestone, Murphy, and Stevenson 1973.

[3] Bowles and Gintis 1976; Levin 1978.

with less education. In support of the view that earnings are largely unrelated to individual skill levels, Marxists point to the lack of a strong statistical effect of differences in academic test scores on earnings as well as the much stronger effect of educational credentials themselves on occupational positions and earnings. [1]

While a fuller presentation and discussion of these theories would certainly be useful in ascertaining how differences in education create differences in earnings, the purpose of this paper is considerably more practical in its orientation. That is, without providing an explanatory theory for the findings, we will attempt to construct an appropriate methodology that can be used by planners to assess the limits and potential of particular educational reforms on equality of earnings. While the results will surely depend upon the underlying relationships, the purpose of this approach is not to test the explanatory power of different theories as much as to derive the planning implications for equality of different educational practices and alternatives. In the next section the conceptual framework for making these assessments will be presented.

III. CONCEPTUAL ISSUES

The purpose of this section is to set out the rationale and conceptual framework for estimating the equalization potential of education on earnings. It is important to set out two initial restrictions which will limit somewhat the results. First, the focus of the analysis will be on the relations between education and labour earnings rather than on education and income. Labour earnings constitute only one portion of income, that attributable to wages and salaries. Income derived from the ownership of property such as income from rents, interests, dividends, and royalties will not be included in the earnings measure. The principal reason for limiting the analysis of educational equalization to its impact on earnings is that presumably the connection between education and income is due primarily to the relation between education and the wage or salary income of a person from labour rather than the amount of property that he or she owns. Ownership of property is more likely to arise from inheritance or high income that exceeds consumption than from the educational level of a person. Of course, to the degree that higher levels of education provide access to occupations where individuals can obtain and utilize information on more lucrative investments or can influence such matters as government decisions that will affect the value of their private property, education could provide greater incomes from property as well as from earnings.

In addition to the theoretical reason for restricting the economic measure to earnings, there is also a practical reason. Since the empirical data for assessing equalization impacts will be based primarily on survey data in which respondents are asked to provide information on their educational attainments, backgrounds, occupations, and earnings, the results are dependent crucially on the accuracy of the data that are collected. It is reasonable to believe that respondents will provide more accurate information on their earnings than on income from other sources. Wages and salaries are received at less frequent intervals. Perhaps, even more important, respondents are more likely to reveal the amounts and sources of their wealth than they are their earnings, the latter being imputable from their occupations. Matters of family secrecy, questionable dealings, income tax evasion, and other factors tend to impart less precision to the reports of such information.

By limiting the analysis to changes in the relative equality of earnings, it is important to recognize that we will not be treating the very serious inequalities created by the concentration of wealth. The highest incomes in any capitalist society are derived from the ownership of property rather than from wages and salaries. While income from property wealth may represent only a third or less of total income, as it does in the advanced capitalist societies, it accounts for almost all of the income of the richest income receipients. Accordingly, even if educational equality were able to reduce inequality in earnings substantially, it would not be likely to have a powerful equalizing effect on wealth and the income received from the ownership of property. It is only by making the distribution of capital, itself, more equal that the income produced by capital will be spread more equally across the population. [2] That particular strategy will not be addressed by the educational analysis in this paper.

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[1] Bowles and Gintis 1976, Chap. 4.

[2] Of course, wealth is even more unequally distributed than income. In the U.S. the wealthiest 6 per cent of the population owns more than half of the Nation's productive wealth. See Joint Economic Committee 1976.

A second restriction of the analysis is that it will be applied only to male populations. If we are to view the effect of education on equalizing earnings of adults, then we must face the problem that many females do not participate in the labour market or they participate for only limited periods of their lives. In contrast, the vast majority of men devote almost all of the period between the end of their schooling and the onset of old age to productive employment in labour markets. The result of these differences is that it is more nearly valid to use earnings as a measure of the equalizing effects of schools for males than for females. However, the restriction of the analysis to males is based only on this practical consideration rather than on any moral imperative.

In summary, the two initial restrictions of this analysis will be to emphasis on the equalization effects of education on the labour earnings of males. Neither income received from the ownership of property nor the equalization effects of education for females will be treated in this paper. However, it is important to note that the basic approach could probably be expanded to take account of both of the present restrictions by making certain assumptions about the non-market earnings of females and by incorporating other forms of income into the analytic and empirical framework. However, these extensions will not be addressed in the present exercise.

Conceptual framework

Before we can explore the effect of educational policies on the distribution of adult earnings, it is necessary to discuss a method for establishing these connections. If the differences in earnings between any two individuals or groups of individuals were constant over time, we could simply look at the earnings differences at any particular point in time and attempt to relate these to differences in education. However, a wide body of research has suggested that earnings vary considerably over the life-cycle between persons with different levels of education and other characteristics. [1/] Accordingly, it is necessary to take account of the differences in earnings over the entire life-cycle among individuals and groups in order to ascertain the degree of inequality in earnings and the relation of that inequality to education.

This can be seen more clearly in the following example. Assume that we wish to explore the effects of education on explaining the earnings patterns of two adult males, one drawn from low socio-economic origins and the other drawn from high socio-economic antecedents. Two problems would confront us. First, while the male from more advantaged circumstances would probably have higher earnings, the earnings differences between the two men would vary over their working lives. In addition to annual fluctuations, we would probably find that the earnings gap between the two men tended to increase over the life span. Thus, the first challenge is to find some way to summarize the lifetime earnings of each man by developing some overall measure that can be used as a basis for comparison. Second, the more advantaged male probably had more material and educational support from his family, greater schooling attainments, and better social connections for converting these assets into employment and earnings than the less-advantaged male. Accordingly, we need some way of separating these confounding and overlapping influences on earnings in order to ascertain the degree to which the differences in lifetime earnings between the two males are attributable to educational differences alone.

The first of these challenges can be resolved by converting the earnings patterns into "human capital values" so that the analysis can proceed by comparing the differences in human capital that are associated with different populations. This procedure can best be understood by referring to the definition of capital given by Irving Fisher:

> "Capital in the sense of capital value, is simply future income discounted or in other words, capitalized. The value of any property, or rights to wealth, is its value as a source of income and is found by discounting that expected income. (I. Fisher, 1930:12-13)."

Just as any earnings stream from a physical asset such as a machine, a building, or a piece of land can be assessed according to its capital value, so can an earnings stream associated with human characteristics. In this analogy, the capital value of a person (to himself) can be assessed by knowing his future earnings power. Differences, then, in the amount of future earnings power will be reflected in differences in human capital values. In general, a public policy attempt to equalize

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[1/] See for example, E. Cohn 1978, pp. 38-44; Blaug 1970, Chap. 2

earnings can be evaluated according to the degree to which it more nearly equalizes the distribution of estimated human capital, since capital values are derived directly from expected future earnings.

In order to see the implications of this method, it is worth while to draw an analogy with assessing the capital value of other types of assets. For example, assume that there exists a piece of land that yields an annual income of $5,000 a year. That is, $5,000 a year is the value of the annual earnings stream. Unlike that of the human being, we will assume that the piece of land has an infinite life and that the earnings are constant from year to year. In contrast, the earnings of a human will vary from year to year and over the life-cycle, and the human being will have a finite earnings period. Just as we might ask what a human being is worth in terms of his human capital value, we shall ask what is the capital value of this piece of land?

Stating the question in a different way, we would ask: What is the value of an asset that will produce an annual income of $5,000? Once the question is stated in this way, we might look at assets whose earnings are associated with a similar degree of riskiness to ascertain their investment return. For example, assume that such investments provide an annual return of 10 per cent. This means that a $100 assets would provide an annual income of $10.00. Given such a 10 per cent return or interest rate, it would take an investment asset of $50,000 to provide an annual income of $5,000, and we would conclude that a piece of land that would provide $5,000 a year is worth about $50,000.

To return to the human capital accounting case, we wish to estimate a capital value for human earnings that would represent a summary measure of the present value of the human asset for any stream of future earnings. By observing how the earnings patterns would change as a function of educational level, it would be possible to ascertain how educational differences alter human capital values. In this way, we can assess the potential of such educational changes, as narrowing the differences in schooling attainments between advantaged and disadvantaged, for altering the distribution of human capital between the two groups. That is, the second challenge of attempting to single out the equalizing effect of education in contrast with other influences in determining human capital differences can be accomplished by determing how different educational and other factors contribute to the patterns of lifetime earnings for the different groups. Just as total earnings patterns can be converted into human capital values by capitalizing the value of the earnings stream, so can particular components of earnings be capitalized such as those attributable to educational influences. In this way, particular policies designed to equalize educational attainments between groups can be evaluated for their potential effects in equalizing human capital between the two groups.

In summary, the method that has been chosen in this study for assessing the potential of educational policies for reducing inequality in adult earnings can be divided into two steps. First, the degree of inequality between two representative individuals can be determined by capitalizing the expected future earnings of each in order to construct human capital values that can be readily compared. In essence, these represent estimated asset values of their earnings streams. The ratios of these human capital values or the differences between them can be used to assess the degree of earnings inequality.

But, this method will only provide a measure of the overall inequality between the individuals under scrutiny and the populations that they represent. To ascertain the effects of educational policies on reducing these inequalities, it is necessary to know how changes in the educational attainments between the comparison groups or individuals will alter the levels of human capital. This can be done by estimating statistically the effects of education on earnings streams and converting these effects into human capital values. That is, if the effect of an additional year of schooling on lifetime earnings patterns can be ascertained, then the effect of an additional year of schooling on augmenting an individual's human capital can also be estimated. Such a procedure can be used to determine how much of the human capital inequality gap would be closed by improving the relative educational attainments of persons in the less-advantaged population. More generally, changes in educational patterns among the different populations could be translated into changes in the human capital reflected in those populations. Thus, one could evaluate the equalizing effects on human capital of such policies as raising the minimal educational requirements or equalizing educational attainments between groups.

Before proceeding to the details of the methodology and its application, it is important to note how this approach to measuring human capital differs from the standard one that is reflected in most of the human capital literature. The great body of work on human capital limits the definition

of human capital to investments in health, education, training, and other human activities which will increase future earnings [1]. That is, the notion of human capital is tied to those changes in human characteristics deriving from an investment process rather than to the set of characteristics that produce future earnings. The value of human capital is determined by the value of the investments in these areas rather than by the value of the earnings streams. We will call this the standard approach in order to differentiate it from the method used in this paper, which will be termed the capitalization or Fisherian approach (after Irving Fisher).

The capitalization or Fisherian approach assumes that any human characteristic that contributes to future earnings has a capital value. If differences in strength, beauty, health, native abilities, race, and social-class origins, to name a few human traits, create differences in earnings of adults, then each of these represents a form of human capital even when no investment process is evident. Under the standard approach, only those characteristics which have been derived from an investment process have capital value, while under the definition used in this paper the capital value is derived from the earnings potential of the characteristic rather than the process by which it was acquired [2].

These differences can be seen clearly in the following example. Suppose there exist two singers with identical talents and earnings, but one of them acquired his singing proficiencies by investing $10,000 in vocal lessons while the other had no training whatsoever. Under the standard approach to valuing human capital according to its investment value, only the first of these two individuals would be considered to have human capital by virtue of his $10,000 investment. But, under the criterion that is used here, the two persons would have identical amounts of human capital from their singing talents as long as the earnings that were generated by these talents were identical. The actual method of acquisition is not a relevant criterion for determining the value of any human characteristic which generates earnings. Rather, it is the earnings themselves that determine the human capital value.

One further note of interpretation is important. The notion of human capital that is used here and its analogue with physical capital is useful only in an accounting sense. That is, this approach to measuring human capital is intended only to provide a summary measure of its value rather than to provide an analytical category that is similar to physical capital. Although a person may have human capital value in generating future earnings, he will not have the options of a capitalist in the sense of someone who owns physical capital. This point is rather obvious. In order to realize his potential earnings, he must work. In contrast, a person with an equal amount of physical capital need not work to realize the same income. Further, short of slavery it is not possible to sell human capital as a commodity, that is to translate it into other asset forms or use it as a basis for speculation. In contrast, physical capital has a market in its capital form, and it can be exchanged for other assets or acquired for purposes of buying and selling and speculation. A person who owns $100,000 worth of property is very much a capitalist, whose income from that property is not dependent upon his labour. A person who owns $100,000 of human capital as measured in the Fisherian manner is very much a worker whose income is dependent upon finding work and providing labour services that will yield the expected earnings stream. These two situations are hardly equivalent, and we should not be misled by the similarity in wording or the methods of calculating capital value between physical and human capital.

IV. ANALYTICAL STEPS

Up to this point it has been suggested that a human capital accounting approach can be used to ascertain the effects of different educational alternatives on the equalization of adult earnings among individuals or populations. The purpose of this section is to set out the various steps of the analysis

[1] G. Becker 1964; T. W. Schultz 1961. In recent years there have been attempts to argue that even child-rearing practices associated with income and other social-class differences are in reality "investments" in human capital. See T. W. Schultz (ed.), 1973 and A. Leibowitz 1974.

[2] M. J. Bowman 1968 presents a useful discussion of different methods of valuing human capital. The present approach was developed in a series of papers. See H. Levin 1971, 1973, and 1975 and Levin and Liu 1973.

in order to construct an empirical framework that will permit the assessment of different educational strategies on equalization. There exist six steps of the analysis: (1) selection of groups for equality comparison; (2) collection of data; (3) estimation of earnings functions; (4) conversion of earnings functions into net present values of particular characteristics; (5) simulation of different educational policies; and (6) interpretation of the results.

Selection of groups for analysis

Obviously, the first task that arises in exploring the consequences of particular attempts to reduce inequality is to select the groups that are the target of such efforts. In order to choose groups that will be the focus of an attempt to increase parity in adult earnings through education and other policies, we must normally consider two premises. First, the inequalities must be unacceptably large, and second, they must be based on criteria which are not considered valid bases for inequality. In the first case, we are likely to see many inequalities in economic rewards among specific individuals and groups that are not considered large enough to be sources of concern. Even in the most egalitarian societies such as China, wages tend to vary in a ratio between five to one and ten to one within industrial enterprises [1/]. Of course, these represent the extreme possibilities, and the differences between any two groups of workers are likely to be considerably smaller. But, the point is that most egalitarian policies are not designed to provide precisely equal incomes, but only more nearly equal ones. Some inequality is often considered to be acceptable or even desirable.

This can be seen more clearly if we consider the second criterion of whether the inequalities are justified? Most societies presume that some differences in earnings are justified by differences in work effort, productivity, risk-taking, responsibility, and so on. Further, differences between young workers and experienced workers are typically accepted on the basis of the greater proficiencies of the latter as well as the typically greater economic demands in supporting their families. In contrast though, it is rarely argued that these types of criteria would justify very large or unlimited differences in earnings, and they might not be considered valid bases for explaining systematic differences among certain groups. With respect to the latter categories, differences in economic returns by social-class origin, sex, race, ethnic group, tribe, and geographical region have been considered suspect categories that may not be justified by the criteria for inequalities that are considered to be acceptable.

Each society or individual must set its own criteria for determining which inequalities need redress and which ones should be permitted [2/]. While it is not the purpose of this paper to address the basis for these decisions, it is clear that there are often consensuses about the loci of inequalities which ought to be addressed by public policy. For example, if disadvantaged families (those with low income and parental education) tend to produce children who will also be disadvantaged in adulthood, while the opposite is true with respect to persons from more advantaged backgrounds, this is likely to be the object of scrutiny with respect to social redress. Similarly, large differences in economic outcomes between races, sexes, regions, and ethnic groups that are reproduced from generation to generation are likely to engender specific concerns about the causes of the inequalities and the rôle of education in redressing them.

What is more important is that the specific groups who will be the focus of the equality analysis must be chosen on the basis of the criteria that were suggested above. If the concerns are based on large differences in economic outcomes for persons drawn from different social origins, this focus must be stated explicitly along with a definition of the criteria for classifying persons into the different groups that will be compared. Thus, the first step in the analysis must be to answer the question towards which the investigation will be addressed: Inequalities between which groups? The study must be designed to carry out its inquiries with these groups as the focus, so the rationale for selecting the groups and the working definitions of them must be as precise as possible.

[1/] A discussion is found in C. Bettelheim 1975.

[2/] Obviously this statement is a highly academic one in that the agencies of social reproduction of a society tend to reproduce not only the inequalities, but also their legitimacy. Further, the political judgements on such matters will be conditioned heavily by the distribution of power in the society rather than by an academic quest for justice. However, see J. Rawls 1971 for such an academic discussion.

Since a typical concern of liberal capitalist societies is that there is social mobility in the sense that there is no particular relation between the economic status of parents and their children, we will use the social-class-origins distinction as the focus for establishing the methodology of this paper. That is, regardless of the conditions of birth, it is generally accepted - at least in theory - that society's members should have an equal chance at such life rewards as occupational position and income. Even in a society with highly unequal occupational positions and earnings, it is argued that persons should have equal access to those attainments rather than the children of the rich and powerful having a monopoly on the better positions while the children of the poor and powerless are relegated to impoverishment and marginality. Thus, one possible focus for considering the equalization effect of different educational policies would be to explore the degree to which they might close the gap between the expected earnings differentials of persons drawn from different social class origins. Presumably, a more equal distribution of educational benefits among students of different social-class backgrounds would lead to a more nearly equal distribution of economic benefits among such groups.

While social-class differences represent only one focus for this type of analysis, they will provide an illustration of how the methodology will be constructed. Once having established the social groups that will be the subject of the inequality and education analysis, it is necessary to define them in a careful way so that appropriate data can be collected. Thus, social class distinctions should be based on a clear statement of criteria with respect to those dimensions that comprise social class. Typical indicators of social-class origins in a non-Marxian framework include measures of parental occupational attainment and status, income, and education. Within a Marxian framework the class distinctions would indicate one's relations to the means of production [1/]. Whatever the definitions of groups, they should be as precise as possible for the ensuing empirical endeavour.

Collection of data

Before discussing the collection of data, it is important to mention briefly the type of analysis that will be performed in the human-capital accounting framework. Essentially, we need to know the levels of earnings and their determinants over the life-cycle for each of the groups represented in the inequality analysis. By knowing the levels of earnings over the life-cycle, we can impute a human capital value to them for comparison among groups. By knowing the determinants of earnings at different parts of the life-cycle, we can estimate the effects of differences in such characteristics as education, training, work experience, place of residence, and so on. In this way we can simulate the effects of changes in educational attainments between groups on human capital equalization.

While we will review this analysis in greater detail, it is important to set out two basic requirements for data collection, the sampling design and the data specification and collection procedures. The sample must be representative of the populations that will be the subject of the comparison, and the sizes of the samples must be adequate to permit the estimation of earnings functions for the different age-groups in each population. This means that attention must be given not only to the sampling of the appropriate populations, but also to the derivation of sub-samples of adequate size among the different age-ranges of the population.

Given a sampling design, it is necessary to specify the types of information that will be collected for purposes of the analysis. In addition to the earnings levels of individuals, information must be obtained on those human capital characteristics that explain earnings. While these will depend on the specific nature of the equality comparison as well as on the nature of the society for which the study is done, one can think of these characteristics as those attributes of individuals which are determinants of their earnings. Typically, earnings-functions studies have suggested that the most important determinants of earnings will include: (1) social-class background factors which may reflect the quality of the home environment, nutrition, child care, and educational stimulation as well as connections in the job market; (2) race and sex which represent proxies for social and

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1/ See for example T. Bottomore 1966 and N. Poulantzas 1973 for differences in conceptual treatment of social class. Appropriate measurement of social-class categories in a non-Marxist framework is reviewed in H. Phelps Brown 1977 and Featherman and Hauser 1976.

cultural differences in orientation and treatment as well as labour market discrimination; (3) geographical factors which reflect labour market structure; (4) educational factors including both qualitative and quantitative dimensions; (5) labour market experience and training; and (6) personal factors such as individual talents, attitudes, skills, and health status [1].

The exact data that are gathered must certainly include useful information on the first five categories. The sixth category is problematic for a number of reasons. First, it is assumed that many of the individual talents, attitudes, and skills will be a product of social-class background, education, and training, so that these former attributes will capture them more economically than attempting to measure a myriad of traits on an individual basis. [2] Moreover, survey data often limit one to obtaining simple responses on a questionnaire rather than testing individuals with respect to their attitudes, values, skills, and cognitive knowledge. Even if such information could be obtained, it would be very costly relative to just collecting questionnaire responses.

A second reason for omitting the collection of highly detailed data on these traits is that where such data have been collected in previous studies, they have not yielded much additional explanatory information. The most prominent example of this is the use of standardized cognitive test scores in recent years for the explanation of earnings. Somewhat surprisingly, differences in test scores seem to have little statistical effect on earnings [3]. A recent study of a representative sample of adults in the United States found that only among white males were test scores of reading proficiency related to earnings, and a one-standard-deviation increase in reading scores (an increase from the fiftieth percentile to the eighty-fourth) was associated with only a 3 per cent increase in earnings [4]. Accordingly, the overall picture with respect to the potential effects of education might be attainable without obtaining extraordinary detail on the personal characteristics of respondents beyond the factors reflected in the first five categories.

Estimation of earnings functions

Substantial numbers of studies exist on the estimation of earnings functions, so the technical aspects of this endeavour will not be described here [5]. In general, a statistical earnings function takes the following form:

$$(1)\quad \text{Earnings} = a + b_1\ \text{Education} + b_2 x_2 + b_3 x_3 + \ldots + b_n x_n + u$$

That is, annual earnings are considered to be a linear function of education, and other factors ($x_2 \ldots x_n$) that were discussed above. The b's represent the slope coefficients or the estimated effect of a unit change in each of the explanatory variables on annual earnings, and u represents the unexplained variance in earnings or the residual. Of course, the equation can also be estimated using non-linear functional forms.

Recall that our purpose is first to estimate the human capital value or present value of the lifetime earnings of the groups that we wish to compare in order to ascertain the overall gap in estimated human capital between the groups. This can be done by knowing the average earnings levels at different points in the life-cycle for each group, information that is readily available in the data set. But, the purpose of the earnings functions is to provide an estimate of the contribution to human capital represented by the different amounts of each human capital characteristic possessed by each group, including the contribution of education. This means that we need estimates of the earnings attributable to different levels of each characteristic or explanatory variable of the earnings function at different points in the life-cycle for each group. In this way, we can capitalize the annual earnings

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[1] For example, see Griliches and Mason 1972; Taubman and Wales 1973; Sewell and Hauser 1975; Jencks et al., 1972.

[2] Jencks et al., 1972 has challenged this assumption in his attempt to explain the relatively low explanatory value of earnings functions equations.

[3] See for example, Gintis 1971 and Griliches and Mason 1972.

[4] Young and Jamison 1974, Tables 2 and 3.

[5] See for example, Griliches and Mason 1972; Hanoch 1967; P. Taubman 1975; Bowles 1972; Mincer 1974.

attributable to each characteristic over the life-cycle in order to obtain its contribution to estimated human capital for each group.

In order to fulfil this requirement, the data samples for each group must be stratified according to age, and separate earnings functions must be estimated for each classification. By obtaining the earnings coefficient (b) for each explanatory variable at a number of points over the life-cycle, it will be possible to estimate the stream or flow of earnings for a representative individual over the life-cycle for any level of education or other characteristic. Of course, these estimates must be done separately for each group, since not only the levels of the characteristics are likely to vary between groups but also the effects of those characteristics on earnings. We must bear in mind that some of the differences in earnings and human capital values will be due to different amounts of human capital characteristics possessed by the groups, while some will be due to the differences between groups in their ability to translate those characteristics into earnings. For example, persons drawn from higher-social-class origins are likely to possess both higher education levels and higher earnings for each year of education by virtue of their access to better jobs.

In summary, the earnings analysis will entail the derivation of earnings functions, by age, for each group so that we will have three types of data available for the construction of human capital values: (1) average earnings over the life-cycle, by group; (2) average ownership of human capital characteristics such as level of education and other factors that explain earnings, by group; and (3) estimated effects of each human capital characteristic on annual earnings over the life-cycle, by group. Given this information, it is possible to estimate the human capital values of the annual earnings as well as to ascertain the human capital contributions to these human capital values. Further, it is possible to simulate alterations in educational attainments between the groups to estimate the proportion of the human capital gap between the two groups that would be closed by a more equitable educational result.

Conversion of earnings into human capital values

The conversion of a stream of earnings into a human capital value requires knowledge of the earnings stream and a discount rate which reflects the relative valuation of income or time preference for income. The standard expression for capitalizing such a stream of earnings to determine their present value (or in this case their human capital value) is represented by (2).

$$(2)\quad HC_i = \sum_{t=i}^{n} \frac{E_{it}}{(1+r)^t}$$

This expression defines the human capital of the i 'th group (HC_i) as the summation of the earnings of the i 'th group appropriately discounted by (1 + r) where r is that discount rate which expresses the time preference for income. The term t represents the year in which the earnings are received so that for the first year of the earnings stream, t = 1, and the final year of the earnings stream, t = n, represents the last year in the life-cycle when earnings will be received because of subsequent death or retirement.

The average amount of human capital in each group that represents the basis for the overall inequality comparison can be evaluated by calculating the results for expression (2) with the average annual earnings for each group over the life-cycle. This requires selecting an age which reflects the beginning of adulthood (such as age 18), so that the human capital estimates might reflect the human capital value of earnings received between ages 18 and 65. The specific interest rate that is chosen for the calculations depends upon a number of criteria which are too complex to discuss here [1/]. However, typically rates between 5 and 15 per cent are used in these types of evaluations. Based upon the application of expression (2) to the annual earnings data for each of the comparison populations, it is possible to calculate the amount of human capital possessed by an average 18-year-old in each population. It is the gap between these human capital values that will be the focus of the subsequent analysis with the expectation that a more nearly equal educational attainment between groups will reduce the human capital differences.

[1/] Some of these issues are discussed in Baumol 1968.

However, the question that arises is how much of the human capital gap between groups would be closed by any particular educational result. In order to answer that question, we need to know the increment in human capital for each group that is associated with additional education. For example, let us assume that the average 18-year-old drawn from lower socio-economic origins has only about half of the estimated human capital of an average 18-year-old drawn from higher origins. Further, most likely we will find that part of the reason for this difference in human capital (and the earnings from which it is estimated) is that the youth from the lower social-class background has received less education. That is, while the youth from poorer origins is likely to dropout of primary or secondary school, the one from higher social-class origins is likely to go to the university (a factor that will be reflected in both lower earnings and more education in the years between 18 and 24 for him).

Accordingly, we wish to know how a more equal set of educational attainments will reduce the human capital gap between the two groups. In order to answer this question, it is necessary to know the human capital value of additional education for the less advantaged person to see how more years of education will add to his human capital and reduce the disparity between him and his counterpart from the more advantaged group. This can be calculated by estimating the value of (3).

$$(3)\quad \Delta HC_{1_i} = \sum_{t=1}^{n} \frac{b_{1_{it}}}{(1+r)^t} - \sum_{t=1}^{m} \frac{E_{it}}{(1+r)^t}$$

Expression (3) tells us that the change in human capital from an additional unit of education for an 18-year-old in the i 'th population will be determined by the present value of an additional unit of education as determined by the summation of the estimated regression coefficients over the life-cycle from the earnings functions at each age level, appropriately discounted, less the summation of any annual earnings lost in obtaining that additional unit of education. In this case, ΔHC_{1_i} represents the additional human capital for an increment of education for a person in the i 'th population; $b_{1_{it}}$ represents the earnings coefficient for an additional unit of education for a person in the i 'th population at time t; m represents the number of years of earnings that would be forgone to obtain another unit of education; E_{it} signifies the earnings of the average person in the i 'th population at time t who does not receive the additional increment of education; and all other symbols are consistent with those in the previous expressions.

Of course, to the degree that a person undertaking more schooling received part-time earnings, only a portion of E_{it} would be deducted in (3). But, by changing the educational attainments between the two groups in this manner, it would be possible to ascertain the consequences for equalizing their human capital values. Indeed, a more nearly equal educational outcome between groups could be assessed to determine the probable impact on reducing the gap in human capital between the two groups. It might also be added that policies for raising the earnings associated with any given level of education, such as the reduction of discrimination or other possible policies, could also be analyzed for their effects on reducing the human capital.

Interpretation of results

What kinds of policies might be simulated from the human capital estimates and human capital coefficients derived from the earnings functions? There are at least four types of educational policies that can be evaluated for their equalizing potentials: (1) minimal educational attainments; (2) raising education of lower groups only; (3) compensatory education; and (4) equalizing educational attainments.

Minimal educational attainments would refer to a policy where an attempt would be made to require everyone to complete a particular level of schooling. For example, a requirement of high-school completion might be evaluated. In that case, one would wish to evaluate the present distribution of schooling between the comparison populations and estimate the additional human capital for each population if everyone completed the minimal level that is being contemplated. One of the paradoxes of such a policy is that it may create greater inequalities under certain conditions. While it is true that the more advantaged populations will have higher proportions of their young people who will have already completed the minimal level that is being considered, it may also be true that the additional earnings for completing that level for the advantaged exceed the additional earnings that will be received by persons from disadvantaged background. That is, while more persons from disadvantaged backgrounds would receive additional education under this provision, the fewer persons from the advantaged background who are affected may obtain greater increments to their human

capital. Obviously, depending upon the portions of each group who would be affected and the human capital returns to each group from meeting the contemplated minimum, the results in terms of human capital consequences could be equalizing or disequalizing.

By raising the attainments of persons from the lower group only, it would be possible to reduce the inequality gap in human capital. This type of educational policy might be evident in the case of attempts to recude regional disparities in schooling by making more schooling facilities available in areas that have deficiencies. Again, depending upon the degree to which the policy would raise the attainments of persons from the lower group relative to the upper one, it would be possible to estimate the degree to which such a policy would reduce the gap in human capital.

Compensatory education represents a policy of providing additional schooling resources for youngsters from economically disadvantaged populations to improve their educational attainments. Normally, this policy is reflected in an increase in educational expenditures on those groups. This means that increases in educational expenditures on the disadvantaged or on one group or race (e. g. rural or minority students) must be translated into their effects on earnings in order to establish a human capital impact. In recent years there have been attempts to ascertain the effects of additional expenditures on both test scores and on educational attainments [1/]. In the former case it is possible to convert changes in test scores into human capital results if test scores are found to affect earnings. In the latter case, educational attainments are already included in all earnings functions, so the translation into human capital values of the results of compensatory educational spending on educational attainments can be readily accomplished.

The purpose of simulating educational equality between groups is primarily aimed at determining the potential of education for more nearly equalizing earnings. Obviously, while one can simulate on paper a condition of equal educational attainments between children from poor and wealthy families, between rural and urban families, or between minority and majority families, the ability of educational policy to obtain such results is far beyond the grasp of even the most optimistic educational planner or reformer. However, the exercise is still worth while because it will tend to indicate the degree to which inequalities are attributable to education in contrast with the degree to which they derive from other factors. For example, if such an exercise showed that equal educational outcomes between groups would reduce human capital differences by only 10 per cent, the equalization implications of educational policies would be viewed quite differently than if the exercise indicated that 80 per cent of the human capital gap would be closed by such an approach.

It is important that appropriate weight be given to all causes of economic inequality in designing policies or in placing responsibility for existing inequalities. It is only in this way that educational policies can be balanced with other approaches in the search for greater equality. Accordingly, a test of the effects of full educational equality on human capital inequality would provide interesting and useful heuristic insights into overall strategies for achieving equality.

Accuracy and robustness of results

Obviously the accuracy and robustness of the results will depend crucially on a number of factors. Foremost among these are the quality of the data and the accuracy of the premises on which the estimates are made. It is difficult to discuss the quality of the data in an abstract fashion, since it is the specifics of the fit between the overall model of analysis and data that is important. However, it is possible to review certain aspects of this fit as well as the accuracy of the premises.

At least two premises are worthy of scrutiny. First, although the policies that are being evaluated assume large shifts in the supply of educated persons, the data are taken from the present situation in which at best one could assume that an increase in the education of one person might have the predicted human capital effect. Whether we assume a neo-classical theory of wages, a Marxian one, or one based upon segmented labour markets and job queue theories, it is clear that for large improvements in education among significant numbers of persons the results of our methodology would tend to overstate the additional earnings and human capital that they would derive. This means that the technique will tend to overstate the equalization effects of educational equality, for

[1/] A good example is J. Akin and I. Garfinkel 1977.

it is highly improbable that large increases in more-educated categories would create the same additional individual earnings reflected in the present relation between education and earnings. For particularly large shifts in education among the less-educated groups, the measured equalization impact would be vastly overstated.

A second premise is that improvements in the amount of education of a particular group will be of about the same quality as that group has experienced in the past for all levels of educational expansion. However, rapid educational expansion may reduce educational quality with a possible reduction in the earnings implications of additional education relative to the effects of the present educational system. Of course, improvements in educational quality would mean that present estimates of earnings and human capital increases would be understated. However, deterioration in educational quality seems to be a more valid historical aspect of mass education and educational expansion [1/]. Taken together, it would seem that the reduction in earnings increments for each year of schooling associated with large increases in the supply of education as well as the tendency towards lower quality would mean that our estimates would overstate the equalizing effects on human capital of educational equalization.

A third premise derives from the tacit assumption that present lifetime earnings patterns associated with particular human capital characteristics will be maintained in the future. We have no way of evaluating the biases that might be implied by future earnings patterns deviating from present ones [2/]. However, it is most likely that any substantial deviations should take place in the distant future rather than in the few years following the analysis (short of revolution or other cataclysmic changes in social and economic structures). Since future earnings are rather heavily discounted in the present value analyses, the overall estimates of human capital will be remarkably robust to such changes as long as their impact is felt at least 15-20 years after the start of the period for which the calculations are made. Further, to the degree that future earnings patters of all the comparison groups deviated from existing patterns because of common influences on them, it is not likely that the overall relations between the different streams of earnings would be altered systematically or substantially.

While changes in the shape of future earnings patterns may have relatively little influence on the human capital calculations for the reasons that were mentioned, any policy that would increase the supply of a particular type of educated labour could have a profound effect on decreasing the human capital value of that level of education. Since it is mainly the less advantaged groups that would be affected by this downward influence on earnings and human capital increments, educational equalization policies between advantaged and disadvantaged groups would tend to overstate the tendency towards human capital equalization associated with such policies. Thus, the measured equalization effects of such policies should be considered as an upper limit on the amount of human capital equalization that would take place. A more sophisticated study might attempt to reduce systematically the estimated earnings increments associated with educational equalization that provided large increases in the supply of educated labour. That is, the tendency for downward pressure on wages and unemployment associated with an excess supply could be taken account of explicitly in the analysis by making certain assumptions about the elasticities of substitution of different levels of educated labour in production [3/]. The magnitude of these adjustments would be based upon criteria that have been discussed in the relevant research literature.

V. AN APPLICATION

In order to show how this approach might be applied to particular kinds of issues faced by educational planners, it is useful to provide some results from an illustrative study. The government of El Salvador wished to consider how loans might be used to provide greater equality of educational attain-

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[1/] See H. Levin 1978 (forthcoming) for examples.

[2/] A discussion of some of the possibilities for error is found in R. Eckaus 1973.

[3/] See Bowles 1970; Dougherty 1972; and Thias and Carnoy 1972; and G. Johnson 1970-71

ments at the secondary and university levels [1]. Since loans would be paid primarily from the additional earnings generated by the additional education, it was important to focus on the earnings and human capital value of the additional attainments. This also provided an opportunity to carry out the analysis according to the social-class origins of persons to ascertain the degree to which equalizing educational results among social classes would equalize their earnings.

Differences in social class were derived primarily by using the educational levels of the parents as criteria. Based upon this measure, three social-class groupings were determined. The restriction of the study to only those persons who were eligible for entry into the secondary level meant that the sample had to be limited to only those persons who had almost completed or completed at least the Basic Cycle of 9 years of schooling. It is important to note that since only a minority of persons achieves this much schooling in El Salvador (perhaps 25 per cent of the school-age population), persons completing the Basic Cycle are a relatively privileged group. This means that much of the inequality in El Salvador is found between this group and those who have less education, so the analysis of inequality within this group is an analysis within a relatively advantaged group for that country. Therefore, even the "low socio-economic" group will be better off educationally than some three-quarters of the El Salvadorean population, and the equalizing effect of education will be tested only within that upper quarter of the population.

In order to obtain information on the earnings, education, social-class background, and other characteristics that might affect earnings, separate surveys were undertaken of male employees in the public and private sectors [2]. The reason for choosing separate surveys for each sector was the expectation that earnings structures would be quite different between the two. Table 1 presents estimates of the earnings by age-group for each of the three socio-economic (SES) categories as well as the human capital estimates. Annual earnings in colones are shown for each age-range by SES level for both the public and private sector. These are summarized as human capital values in the column on the right.

Several observations can be noted from Table 1. First, in both the public and private sectors, persons in the sample from higher SES levels have higher earnings than those from lower SES levels. Second, the earnings patterns between the two sectors show advantages at some ages and SES levels for the private sector and at some ages and SES levels for the public sector. Third, the human capital values also reflect differences according to socio-economic origins. One pattern of note is the very high human capital value for high SES males in the private sector relative to the other groups. Interestingly, older males in the high SES category in the private sector receive lower earnings than the high SES group in the public sector, while for younger males the opposite is true. Because the capitalization procedure penalizes incomes received towards the end of the working life relative to those received at the beginning, the human capital value of the earnings streams of high SES males in the private sector is considerably higher than that for the public sector.

Presumably some of the differences in human capital among the different socio-economic groups are due to differences in education among them. Table 2 confirms this pattern by presenting the percentage of males 25-34 years of age by SES whose education terminated at each level. The 25-34 year old category was chosen to reflect young males who had probably completed their educational experiences. Three levels of education are listed: Basic Cycle, Secondary, and University. In addition the careers of study at the secondary and university levels have been listed. While all those who have completed or almost completed the basic cycle only are shown at that level, not all of the persons shown in the secondary and university categories completed those levels. However, the average number of years of schooling completed in each field at each level was about the same for persons of different SES backgrounds within each sector.

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[1] The overall study of El Salvador was co-ordinated by M. Carnoy with financial support from the Inter-American Bank. The analysis that is presented here is taken from Chapter Five, which was prepared by the present author. Further details can be found in the Report itself. See Center for Economic Studies 1977.

[2] See Center for Economics Studies 1977, Chap. 1 and 2.

Table 1. Earnings at different ages and human capital values of earnings streams at age 18 for males working in the Public and Private Sectors in El Salvador (colones)

	Annual Earnings at Age:					Present Value Age 18-65
	14-19	20-24	25-34	35-44	45-54	HUMAN CAPITAL VALUE
PRIVATE SECTOR						
All Men	2292	4584	6672	7644	8892	53212
Low SES	1764	3180	6372	6545	7576	44438
Mid. SES	1968	3432	6324	8072	10368	49623
High SES	7536	14028	9348	10368	11244	106683
PUBLIC SECTOR						
All Men	2784	4260	7344	9360	10656	58509
Low SES	2712	4032	6756	7656	9000	52616
Mid. SES	2916	4224	7332	10620	10800	60408
High SES	2928	5208	9420	13632	13452	74892

Note: Present Values were calculated on basis of following formula:

$$\sum_{t=18}^{65} \frac{E_t}{(1+.10)^{t-17}}$$

This is the standard approach to estimating the present value of an asset. The interest rate that was used was set at 10 percent, and the earnings stream between ages 18 and 65 was utilized. The value of earnings for each year was interpolated between the midpoints of the age classifications set out above, and they were extrapolated to age 65 from the midpoint of the 45-54 year old category.

The distribution of education in Table 2 suggests that at least some of the differences in estimated human capital among social classes are due to differences in educational attainments. For example, among private-sector employees, over half of the low SES males achieved no more than the completion of the Basic Cycle, while only 13 per cent of the high SES males had ended their education at that level. Over half of the high SES males in the private sector had attended the University, while only 15 per cent of the low SES males had gone that far. Similar patterns are also reflected among public-sector employees.

In order to know the effect on equalizing human capital of equalizing educational attainments among the SES groups, it is necessary to know the impact of changes in the distribution of education on the estimated values of human capital. This was done by estimating earnings functions, by age, for each SES group within the public and private employment samples. The results of these earnings functions were capitalized in order to ascertain the human capital value for any educational attainment for each SES group, by sector. Table 3 shows the estimated human capital by educational level and SES for males at age 18.

Table 2. Distribution of public and private sector samples of males, 25-34 years of age, by level of education and socio-economic status (percentage of group in each educational category)

	All males 25-34	Low SES	Middle SES	High SES
PRIVATE SECTOR				
Basic Cycle	41	51	25	13
Secondary:				
Academic	12	10	16	14
Commercial	3	4	2	0
Industrial	1	1	1	2
Accounting	13	11	18	13
Bookkeeping	6	6	8	4
Total	35	32	45	33
University:				
Administration	14	10	20	30
Engineering	3	1	5	14
Medicine	**	**	1	2
Humanities	2	3	2	2
Law	1	1	2	4
Total	20	15	30	52
PUBLIC SECTOR				
Basic Cycle	36	44	30	17
Secondary:				
Academic	7	8	6	5
Commercial	2	2	2	**
Industrial	1	1	1	**
Bookkeeping	4	4	4	**
Pedagogy	1	1	**	**
Others	4	4	3	**
Total	19	20	16	5
University:				
Administration	9	8	10	10
Social Sciences	6	5	8	10
Engineering	14	10	16	24
Pedagogy	1	1	1	**
Humanities	4	4	3	4
Physical Sciences	2	2	1	2
Law	3	2	3	7
Medicine	8	5	10	15
Total	47	37	52	72

Note: Column totals may not equal 100 percent because of rounding.

** indicates less than one-half of one percent.

Table 3. Human capital values of earnings for males at age 18 by educational level and socio-economic status for El Salvador (colones)

	All	Low SES	Middle SES	High SES
PRIVATE SECTOR				
All Education Groups	53212	4438	49623	106683
Basic Cycle	36406	31994	36039	96298
Secondary:				
Academic	52570	44008	53188	102083
Commercial	40632	48446	43833	--
Industrial	47851	--	37124	--
Accounting	63854	59735	54840	38719
University:				
Administration	62350	48815	140873	
Engineering	94502	79521	80699	147898
Humanities	52011	59647	--	78052
Law	59352	--	56142	128290
PUBLIC SECTOR				
All Education Groups	58509	52616	60408	74892
Basic Cycle	40641	38697	41760	51453
Secondary:				
Academic	45420	43812	44528	48762
Commercial	33421	33493	33339	37696
Industrial	47161	39793	50778	51915
Pedagogy	40768	43503	55955	43400
University:				
Administration	72921	80829	62933	71184
Social Sciences	68678	65905	70159	72388
Engineering	78717	71855	75490	88516
Law	56581	50521	52334	62016
Medicine	57013	56908	55552	57795

Note: These values are estimated at age 18 using a 10 pe cent discount rate according to the following calculation for each educational level within SES group and sector.

$$\sum_{t=18}^{65} \frac{E_t}{(1+.10)^{t-17}}$$

Educational categories with few observations in the sample or with unreliable statistical results were omitted from the table.

As one reads down each column, one can see the present value of earnings of human capital value for a male in that particular group with a particular level and type of education. As one reads across the columns, one can ascertain the differences in human capital for any particular level of education among the various SES groups. From this table we can see that additional education raises the human capital value of representative individuals of each population. For example, while the average human capital reflected in the total private sample for all education groups was about 53,212 colones, those who completed only the Basic Cycle had earnings which had a human capital value of only about 36,000 colones. Those who had studied at the secondary level had human capital values between about 41,000 and 64,000 colones, depending upon the field of study, while those who

had studied at the University had earnings streams valued in human capital between 52,000 and 95,000 colones. As we expected, there is generally a positive relation between the amount of education and the amount of human capital in these populations.

But, as we read across the table, a very interesting pattern emerges. With few exceptions, the high SES males are able to convert their education into substantially greater earnings and human capital than are those from the low and middle SES groups. For example, even at the Basic Cycle level the high SES male in the private sector is realizing a human capital value of over 96,000 colones, which is almost three times the human capital value associated with low and middle SES men who have achieved that level of education. Even more remarkable is the fact that the human capital value of this low level of education for high SES men in the private sector exceeds the human capital value for university-educated males from the low and middle SES groups. Somehow the high SES male has advantages that yield him a higher earnings stream and human capital value, even at the lowest levels of education in this sample. Possibly this reflects employment in family-owned or controlled businesses or the appropriate social connections to obtain the best jobs or other advantages which improve job opportunities. Whatever the cause, the implication is that equalization of educational attainments in itself will not provide equalization of human capital.

This can also be seen in the comparison of human capital values for high SES males with other males at the secondary level, where the high SES male has twice as high a human capital value as for the other groups. At the University level, the differential pay-offs in favour of the high SES males are also evident. In only one case, that of the secondary accounting career, is the return for the high SES males low, and this may be due to a statistical aberration. Where no figures are shown, the sample was so small that reliable calculations could not be made.

For the public sector the patterns are similar, but the differentials in human [illegible]es among SES groups at the same educational level are much smaller. In all probability this degree of equality can be attributed to more nearly standard pay scales by educational leve[illegible] public sector, as well as to the likelihood that those high SES persons that lack good business and professional connections and other advantages in the private sector will obtain public sector employment.

In summary, the high SES male in both the public and private samples shows a human capital value greater than his low and middle SES counterparts for almost every educational attainment. This disparities are greatest among males employed in the private sector, but they are also present in the public sector. Accordingly, the equalization of educational attainments among the groups will not, in itself, equalize the human capital values of their earnings. But, it is crucial to determine how much of the human capital differences would be equalized by the achievement of equal education for the SES groups.

Table 4 shows the estimated effects on reducing the gap in human capital among different social classes by equalizing educational attainments among them for each of the sectors. The educational distributions that were presented in Table 2 were applied to the human capital for a representative of each group both before equalizing education and after equalizing education of the two lower groups with that of the high SES group.

Before equalizing educational attainments, the human capital values in the private sector varied from about 41,000 colones for the low SES males to about 113,000 colones for the high SES males. By applying the human capital values of each educational level for the low SES males to the educational attainments of the high SES males, the equalizing effect of education raises the estimated human capital for the low SES males in the private sector to 52,391 colones. Giving the middle SES males the education of high SES males raises their human capital to almost 60,000 colones.

But, it is obvious that while some equalization in human capital does take place, it does not have very much of an effect on the overall distribution of human capital among the groups. Because the high SES males seem to be able to convert the same level of education into much higher earnings than the other two groups, equal education among them does not come close to achieving equal human capital. As Table 4 indicates, before equalization, the human capital of the middle SES group was about 47 per cent of that of the high SES group and that of the lower SES group was only about 36 per cent of the high SES one in the private sector. But, after equalizing educational

Table 4. Estimated effects on reducing the gap in human capital among different social classes of equalizing educational attainments

	BEFORE EQUALIZING EDUCATION		AFTER EQUALIZING EDUCATION	
	Estimated Human Capital (colones)	% of high SES	Estimated Human Capital (colones)	% of high SES
PRIVATE SECTOR				
High SES	112,782	100	112,782	100
Mid. SES	52,864	47	59,833	53
Low SES	40,770	36	52,391	47
PUBLIC SECTOR				
High SES	67,951	100	67,951	100
Mid. SES	55,214	81	59,942	88
Low SES	49,958	73	59,955	88

Note: Present Values are based upon applying the educational distributions in Table 2 to the human capital values in Table 3 for each group.

attainments, the middle SES level of human capital rises only to 53 per cent and the lower SES value to 47 per cent of that of their high SES colleagues.

The simulation of the impact of equalizing educational attainment in the public sector shows a similar story, although the inequalities both before and after equalizing education are far less. While the middle SES males showed human capital values of 81 per cent of the high SES males before equalization, they rose to 88 per cent after simulating the effects of equal education. The lower SES groups shows a rise from 73 per cent to 88 per cent.

In summary, among the three SES groups of these relatively, highly-educated males, the high SES persons had received more education than did those from lower SES origins. Further, the human capital value of education was greater for those from higher SES origins, with rather massive differences in the private sector and more modest ones in the public sector. When educational attainments were equalized among the three groups, the estimated reduction in disparities in human capital was shown to be very minimal in both the public and the private sectors. Further, as we stated above, these simulations may overstate the true tendency towards equalization of earnings streams and human capital by not taking account of the downward pressure on wages exerted by substantial increases in the supply of educated labour.

However, Table 4 also illustrates another interesting result. Even before equalizing educational attainments among the three SES groups, the distribution of human capital is far more equal in the public sector. That is, the human capital value for middle SES males is 81 per cent of those of high SES males in the public sector before educational equalization, in contrast with only 53 per cent in the private sector after educational equalization. For low SES males the comparable figures are 73 per cent before equalization in the public sector and 47 per cent after equalization in the private sector. This pattern suggests that while the equalization of educational attainments among those persons at or beyond the completion of the basic educational cycle in El Salvador will have

some equalization impact on earnings and human capital, the expansion of the public sector relative to the private one is likely to have a much more powerful equalization effect. It should also be noted that the expansion of the public sector will also tend to reduce inequalities in incomes from property. Of course, the efficiency of these types of shifts must also be explored, but the limits of educational equality on economic equality in the private sector is certainly a finding that suggests a search for other equalization alternatives as well. Also, one must bear in mind that educational equalization in itself requires massive resources, so that any efficiency claims of educational investment ought to be scrutinized very clearly. The same care should be taken in evaluating efficiency claims of private- versus public-sector expansion, particularly under conditions where expansion of private-sector investment is undertaken primarily through foreign investment and foreign control of economic activity. However, it is not the purpose of this paper to evaluate these claims directly, but to limit the exploration to the equalization potential and limits of education.

VI. SUMMARY

This endeavour began with the premise that many societies are characterized by substantial economic inequalities that are often considered to be a legitimate target of equalization. Within the mix of public policies aimed at more nearly equalizing economic outcomes, education is considered to be one of the more important strategies. Accordingly, it would seem that planners ought to have a method for assessing the equalizing impact of education on economic returns as well as to rank different educational strategies according to their equalization potential.

The purpose of this paper was to set out a methodology for carrying out such analyses, while illustrating them with a specific application. The focus of the methodology was the use of a human capital accounting procedure that utilized expected earnings streams to estimate human capital values. By providing estimates of the determinants of earnings over the life-cycle among the groups that were foci of the equality analysis, it was shown that it is possible to estimate the effect of particular educational results and other changes in earnings on altering the human capital values represented among different populations.

There are two important outcomes of this type of research that should be useful to the planner. First, it is possible to evaluate educational strategies not only for their manpower consequences, but also for their equalization consequences relative to the costs of each strategy. At the present time, the distributional consequences of educational policies and plans are presumed rather than analysed in the selection of particular planning strategies. Second, this method enables an assessment of both the limits and potential of educational expansion and equalization for more nearly equalizing earnings and income in each society. As I have attempted to demonstrate in previous analyses, when educational planning and reform are directed towards altering characteristics of a society that derive from the basic political, economic, and social functioning and structure of that society, the educational reforms and plans will fail to achieve their stated objective [1/]. To the degree that modern educational systems rose historically to reproduce the inequalities of capitalist and state socialist production relations, we should be sceptical that they can be used as a purposive tool of equalization policy.

The advantage of the methodology that has been proposed is that it can take available data and place those data in an analytical framework that enables one to assess the promise of education in alleviating inequalities. Surely, if the results are as pessimistic as those in the illustration for El Salvador or in a study of Singapore that has been completed [2/], the educational planner must begin to consider the limits of education for equalization rather than just its potential. Further, it may stimulate planners to look at the larger social, political, and economic context in which inequalities are derived when they set out to explore the characteristics and functioning of a more equitable and humane society. Educational change is not always the answer to defining and achieving these objectives. It may be a part of the solution, but hardly the driving force of change. This is one of the foremost political issues that can be partially evaluated by assessing the equalization potential of education within our present societies.

[1/] H. Levin 1977, 1978 and 1978a and Carnoy and Levin 1976

[2/] Work to be published by H. Levin and Pak Mai Liu.

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Inequalities in education in rural Guatemala

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INTRODUCTION

Of all countries in Central America, Guatemala offers the widest contrasts between urban and rural life, compounded as is this cleavage by the ethnic split between the indian and the non-indian populations.

Any attempt to identify this contrast must start with the explanation of what is meant by 'rural' and by 'urban'. From the literary definition [1], which by definition opposes it to urban, to the demographic definitions used by some censuses and which consider 'rural' those dwellings which count less than 2,000 inhabitants [2], the concept is not a simple one to handle. In Guatemala, today, the definition is of a legal nature and has its roots in a Government Decree of 1938 [3] which had been suspended in 1950. The urban area is thus defined as that which is occupied by "populated zones which fall within the category of cities (ciudades), towns (villas) or villages (pueblos)". This is tantamount to circumscribing urban areas to seats of township ("cabezeras municipales").

The definition of rural areas is equivalent to 'the rest' or, in the administrative language of the Decree, : "rural population inhabits hamlets (aldeas), clusters of isolated houses (caserios), and individual farms (fincas)".

Such an administrative break-down does not, unfortunately, reflect the nature of cultural and social organizations as well as the forms of production which really characterize rural areas. Under the present definition many "urban zones" or township seats ("municipios") are hardly larger than, or culturally different from, hamlets or isolated farmhouses. In some of the less populated of the 21 departments which constitute the territory of the Republic, the very capital of the department is not as significant as a "municipio" in the more economically active departments. Thus it may be said that the definition which governs the data to be used in the following pages gives more weight to the urban configuration of Guatemala than reality would probably suggest.

This word of caution may not be altogether irrelevant as we examine the considerable contrast that emerges from a comparison between the "Two Guatemalas". Indeed, still more heterogeneous extremes would appear if the definition were 'purified' and currently classified 'urban' zones would - as they merit - be counted in the category of rural dwellings.

1/ The Concise Oxford Dictionary, p. 1079.

2/ Guatemala Census of 1950.

3/ Acuerdo Gobernativo del u. 4. 1938, as quoted in March 1973 Census (VIIIth Census of Population), Serie III, Tome I, p. XXVIII.

I. THE RURAL WORLD

How then, can one characterize Guatemala's officially labelled "rural world"?. Whilst one must not confuse it with the world of agricultural production, there is little doubt that the main activity of the rural world is agriculture and that the brunt of the economic activity of the agricultural sector takes place in rural areas. To be sure, agricultural industrial processes ("upstream" manufacture of farm tools and implements, machinery, etc. and "downstream" processing and storage of produce) may take place in urban areas, whilst rural areas count on handicraft production, infrastructure development, etc., which cannot be classified under "agriculture". Yet it is not erring too widely on the side of misnomer to identify one (the rural world) on the basis of indicators relating to the other (agricultural production) for want of specific data strictly reflecting the image we are seeking to delineate.

Agricultural production in Guatemala is composed of export crops (coffee, cotton and bananas essentially), domestic consumption produce (basic grains, fruits and vegetables) and industrial consumption commodities (sugar cane, wheat, rice, tobacco, rubber, sesame). In addition, the country produces, exports or consumes cattle, poultry and meat. The seat of production of all these is obviously the rural world. The aggregate production of this sector represented, in 1976, 27.9 per cent of the Gross Domestic Product [1/], a share which remained stable from 1960 to 1976, while the Economically Active Populations (E.A.P.) within this sector fell during the period 1964 to 1973 from 65.6 per cent to 57.2 per cent, suggesting, in global terms, a not insignificant productivity rise. In 1975, out of an E.A.P. of 1,836,500, almost 1,000,000 (54.5 per cent) were engaged in the agricultural sector. In the same year, of an estimated total population of 6,100,000, 3,860,000 (63.6 per cent) were classified as rural dwellers.

The first of these figures, which relates to remunerated workers of 15 years of age or older, does not fully reflect the reality of the rural world where, at the age of five, children begin to participate in the production process, reaching, at the age of 10 or so, fully activity in coffee or cotton harvesting, and where women are active in food-grain production as well as in the handicraft sector without receiving a direct monetary income. Were the definition of the E.A.P. to reflect this reality, there would be considerably greater convergence between the ratios of rural inhabitants and E.A.P. in agriculture.

A presentation of the rural world of Guatemala would not be accurate if it were to omit reference to the indian population of Maya descent. They represented in 1973 2,500,000 inhabitants or 43 per cent of the total population. Of these, 2,000,000 are rural dwellers. In other words : the indian population represents 52 per cent of the rural population. When looking at the rural world of Guatemala it is, therefore, important to recall that it is far from being homogeneous and that within it there co-exist two populations - often totally estranged by cultural and linguistic barriers. It may prove noteworthy subsequently to point out these differences in order to further discriminate rural issues and problems.

Looking at the rural world as a whole, and given that it represents two-thirds of the total population which contributes one-third of the national production, it may be supposed that its share of the national wealth should be in proportion to either the numbers of its population or - at least - to their productive effort.

Data on income per capita and per family represent the first indicators of the disparity between the two worlds. Table 1 reveals this gap .

On the basis of Table 1, the average per capita income for 1973 was assessed at $761 for urban areas and $82 for rural areas (differential ration = 1 : 9.3).

The table indicates that the income of 70 per cent of the rural population is some five times less than for their urban counterpart. It also shows that the "upper brackets" show rapidly growing trends of divergence leading to differentials of more than 15, in favour of the urban population, for the top decile of either category.

[1/] Industry : 24.3 per cent and Services : 47.8 per cent.

Table 1. Distribution of average yearly family income per population deciles (Urban and Rural - 1969 prices in U.S. dollars)

Deciles	Income rural Area	Income Urban Area	Ratio (Rural = 1)
I	166	759	4.6
II	222	861	3.9
III	269	1215	4.5
IV	301	1341	4.5
V	340	1721	5.1
VI	387	1974	5.1
VII	445	2328	5.2
VIII	521	4573	8.8
IX	677	8224	12.1
X	1084	16867	15.6

Standard Deviation : a) Urban = 5066 - b) Rural = 296 - Ratio 1:17.1
Average : a) Urban = 3986 - b) Rural = 422 - Ratio 1:9.5

Source : "Guatemala - Datos e indicadores para el Area Educacion y Desarrollo Rural" Monografía Nº 61, Serie I - Junio 1978 - Projecto regional UNESCO/PNUD RLA/72/100 - Table 6.03 based on Data from National Council for Economic Planning.

Given the fact that 83 per cent of the rural population - which represents 35 per cent of all rural income - either owns no land or less than 4 ha. [1], most heads of rural families, often accompanied by some of their children, are wage-earners - at least during the harvesting season.

Figures for March 1976 [2] show that 42 per cent of agricultural workers earned $24 monthly or less, while another 41 per cent earned between $25 and 49. Thus, 83 per cent of agricultural workers earned less than $50 monthly, while the equivalent figures for the manufacturing industry and for the services are 28 per cent respectively.

As the monthly minimum legal wage in agriculture for that year was $34, it is not unfounded to suggest that at least half, but probably far more, agricultural workers do not receive their minimum entitlement. Given the minimum wage for the manufacturing industry and for services, the equivalent injustice affects less than one-third of workers and employees in those sectors. Roughly speaking, it may be said, therefore, that twice as many rural workers as urban ones receive a wage below the legally established minimum standard.

It may be argued that the cost of living in rural areas is inferior to the situation prevailing in urban centres. The Consumer Price Index shows, however, that from December 1975 to July 1976 the food price index rose by 15.9 per cent in the rural world as against 2.9 per cent in the urban areas [3].

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[1] In 1970, 69 per cent of all land ownership was made up of properties of less than 7 ha., which covered an area of 35 per cent of all arable land. At the same time, 0.4 per cent of properties, none of which was smaller than 890 ha., covered 42 per cent of the cultivable area.

[2] Op. cit., Table 6.05.

[3] Op. cit., Table 6.10.

To the question raised earlier (see paragraph 10) concerning the share of national wealth accruing to the rural population, a preliminary response based on criteria of wage, income or property hardly suggests that a relationship exists between the size and the productive contribution of the rural population and the means of consumption made available to it. A subsidiary response may be found in the existence of indirect benefits channelled by the State in the form of social services, which represent an instrument of redistribution of the National Income.

Nutrition is an area which - conceivably - could benefit from contributions from the Government so as to make up for limitations in direct purchase capability. In the period 1965-1967 (latest available data from the Nutrition Institute of Central America and Panama - INCAP), rural preschool children received a diet deficient in calories (36 per cent below adequate level), iron (53 per cent deficiency), vitamin A (34 per cent deficiency), vitamin C (50 per cent deficiency) [1]. In 1970, INCAP noted that the total low-level income group (equivalent to 70 per cent of the rural population) suffered from a general calorie deficiency of 39 per cent and a protein deficiency of 44 per cent [2].

Looking at health in general, nationwide early infant mortality, which represented 27 per cent of total mortality figures, reached 78 per 1,000. In rural departments, this figure almost doubled. In the same departments, there were from 1,000 to 4,000 persons per hospital bed (national average : 418 - 30 per cent of all hospital beds being in the single department of the capital city). In 1973 there were, nationwide, 1.2 doctors per 10,000 inhabitants. In rural areas, that rather deficient figure was down to a fraction.

In the field of housing [3], the deficit of housing units for the period 1970-1975 was estimated by the National Housing Bank (BANVI) at some 390,000, of which some 270,000 were in rural areas [4]. While in 1976, 57 per cent of urban housing was linked to the public water service, only 3 per cent of rural dwellings benefited from this facility. In 1971, drinkable water was available to 97 per cent of the urban population and to 12 per cent of the rural population. In 1973, 45 per cent of urban housing was serviced by municipal drainage facilities. The equivalent figure for the rural world was 0.6 per cent.

From the above information, it becomes evident that the gains obtained through the production of the rural sector are not proportionately channelled back to it in the fields of nutrition, health and housing. There remains thus the one key field of education which could, perhaps, offer a more favourable reply than the ones encountered so far.

II. EDUCATION IN THE RURAL WORLD

Three aspects of rural education - essentially formal - may help obtain the image sought : access, efficiency and relevance. "Access" will shed light on the democratic nature of school entrance. "Efficiency" may clarify the concepts underlying the method and spirit of the learning process, as well as the availability of human and material resources mobilized to serve it. Finally, "relevance" may show the relation between the content of learning, or the nature of the "valued added" offered the learner, and "outside" social and economic demands.

Access : A reflection of how accessible is - or has been - the school system is to be found in the prevalence, or absence, of literacy among the population. In 1973, nationwide illiteracy amounted to 53.9 per cent of the population. This meant that 27.4 per cent of urban dwellers were in that category as compared to 70.9 per cent in rural areas. This situation makes Guatemala the country in Central America with the highest proportion of illiteracy, though closely followed by Nicaragua and Honduras, as shown in Table 2.

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[1] Op.cit., Table 8.02.

[2] Op. cit., Tables 8.03 and 8.04.

[3] Op. cit., Tables 10.03 and 10.04.

[4] In 1974, the Public Sector built 1,257 units. Op. cit., Table 10.07.

Table 2. Illiteracy rate in the six Central American Countries (urban - rural)

	National average	Urban average	Rural average
Costa Rica (1973	10.2	4.4	14.7
El Salvador (1971)	42.9	21.8	59.0
Guatemala (1973)	53.9	27.4	70.9
Honduras (1964)	47.5	24.2	61.9
Nicaragua (1973)	46.9	23.9	68.7
Panama (1970)	17.8	6.1	30.9

Source: CEC "Algunas consideraciones acerca del papel de la educación en el desarrollo rural de los países de Centro América", Guatemala, Sept. 1977, p. 24.

A further scrutiny of the illiteracy situation as presented in Table 3 shows the magnitude of divergencies between the urban and rural groups, and within both, as we note the status of the indigenous population and particularly of the women.

Table 3. Illiteracy rates of population 18 or above by ethnic group and sex and by territorial location (1973) (% of total population in group)

Population Group :	Urban	Rural
Non-Indian	18.8	57.4
Men	12.2	49.8
Women	24.5	65.8
Indian	62.7	84.7
Men	46.6	75.1
Women	78.1	94.4
Total	28.8(1)	73.2(1)
Men	20.3	63.8
Women	36.3	82.3

(1) The discrepancy between this figure and the one appearing in Table 2 is due to the difference in the population base : 15 years old and above for Table 2 and 18 years old and above for Table 3.

Source : VIIIth Population Census of Guatemala, March 1973, Serie III, Tome I, 1975.

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A cross-sectional comparison indicates that the two most significant causes of segregation are the rural and indigenous conditions. Sex is obviously a negative factor for female literacy, but carries less relative weight in rural or urban conditions or by ethnic groups than the other combinations. An indian rural dweller has almost half the opportunity given to - or obtained by - the non-indian, while both have a level less than 40 per cent that of urban literacy.

The difference in conditions of access to educational opportunities can next be measured by both the school enrolment rates and the admission of new entrants. In 1975, the national gross rate of enrolment for primary education was 48.6 per cent, but while 70.3 per cent of urban children of the age-group were in school, rural schools only absorbed 36.5 per cent of children in that area. Thus it may be said that a rural child has half the opportunity to attend school than an urban one and, obviously, a child in the capital city of Guatemala, where enrolment rates reach almost 80 per cent, is particularly privileged [1/].

Once again, however, it must be noted that within the rural world the indian child is particularly neglected. While 48 per cent of non-indian children attend rural schools, only 26 per cent of indian children are in the same condition. As the author of the quoted study indicates, "Inequalities of opportunities caused by the rural condition and those brought about by the indian community origin mutually reinforce each other. The opportunity to attend school given to an indian child from a rural community is only one-third of that which is offered to the average non-indian urban child".

Looking now at access to school of new entrants, statutorily set at the age of 7, we note that 56 per cent of urban 7-year olds enter school, while the corresponding figure for rural areas is 25 per cent (35 per cent for non-indian children, which corresponds to the national average, and 15 per cent for indians).

Moving up to the next tier of the formal school structure, actual access to basic education (first level of secondary education) shows itself to be extremely difficult for rural children. (see Table 4).

Table 4. Enrolment as percentage of 14-19-year-olds in middle-level education.

	Urban	Rural	Total
Non-indian	27.81	1.83	15.46
Indian	4.63	0.19	1.10
Total	22.56	0.92	9.63

"This result is logical" explains Gutierrez-Renon, "Rural and/or indian children have access in much smaller proportions than the urban and/or non-indians to Primary Education and therefore reach in much smaller proportion the indispensable level of Graduation in order to enter Basic Education. It follows that rural and/or indian primary-school graduates reach Basic Education in considerably smaller numbers than urban and/or non-indian graduates. The phenomenon repeats itself in a like manner throughout Secondary Education. To the extent that the factors of inequality are of a permanent nature, the very inequality grows in geometric proportions" [2/]. This is made clear by the fact that while 278 out of 1,000 non-indian urban youths have access to Secondary Education, only 2 indian rural youths benefit from an equal opportunity.

[1/] Data in this and the following paragraphs are taken from the study prepared by Alberto Gutierrez-Renon, Unesco Expert on "Inequalities of educational opportunities for the Guatemalan Child", prepared in August 1977 as a contribution to the Seminar of Institutions for Child Protection organized by the Commission for the Year of the Guatemalan Child.

[2/] Op. cit., p. 9

On the first count of "access" it may be concluded that the fundamental inequality between the rural and urban worlds does not appear to be compensated by any advantages, or priorities, granted to rural - and particularly indian-children. If it were so, the growth in the national enrolment average would reflect a global and rural-biased enrolment growth, rather than increased opportunities being offered to more urban children at the detriment of the marginated rural youths. Such a decision would imply profound changes in the existing distribution of educational facilities - both material and human.

At present, in the rural areas ("hamlets" and "clusters of houses") few, if any, schools offer a full 6-grade course either in multiple-grade-one-teacher establishments or in multiple-grade-multiple-teacher alternatives. In 1975, 97.1 per cent of all incomplete primary schools in the country were to be found in the rural areas. This was the case for 71 per cent of all rural primary schools. The absence of rural facilities explains, to a very large degree, the low access possibilities for rural children, but may also help to understand the reasons for the low "performance" of rural school children when the test of efficiency is being applied.

Efficiency : Limiting our examination to the "internal efficiency" of the school system and leaving aside for the time being the author's predilection for questioning the word and the concept [1/], we note that in 1974, urban primary schools "failed" 14.5 per cent of their pupils. The corresponding figure for rural schools was 24 per cent. At the end of the first grade, 27 per cent were not allowed to pass in urban schools, as against 37 per cent in rural establishments.

This apparent discrimination is further confirmed by data on "drop-outs". In 1974, urban primary schools recorded as drop-outs some 7.8 per cent of total enrolment. The corresponding figure for rural institutions is 18.6 per cent. If 2.4 times more children drop out in rural schools than in urban ones, it is, once again, because there is nowhere for them to go unless they accept (or their parents ...) to repeat the same grade until some vacancy occurs. In the same year, the arithmetic average number of drop-outs during the first three grades was more than twice as large in urban as in rural schools (9.2 per cent in the former and 18.6 per cent in the latter). At the same time, the same average for the last three grades was almost three times greater in rural schools (4.3 per cent and 11.8 per cent respectively).

This might suggest that as the upper grades are less available in rural areas, no opportunity is offered children to remain in, or go to, school. Thus, appropriately, it may be said that it is the school that "drops out" on the child and not the converse.

This situation is not peculiar to Guatemala. The same distortions appear in another Central American Country having rather different enrolment indicators : Panama. In spite of the fact that the net Primary School Enrolment Ratio is twice as high as in Guatemala (82 per cent in 1975), 95 per cent of incomplete schools were in the rural sector where the number of repeaters was twice as high as in urban schools (15.6 per cent and 7.7 per cent respectively) and the number of drop-outs 35 per cent higher [2/].

All this may have several causes, none of which reflects on the innate capacities of rural schoolchildren. On the one hand, programmes - as we shall see in the subsequent section - are conceived outside of the child's environment and, both in their content and form, are foreign to his motivations and interests. On the other, teachers sent to rural areas have, in general, no interest in identifying their career to non-urban living conditions and thus apply, bureaucratically, the central administration's instructions when it comes to grading (read "selecting") the children.

1/ A system functions "efficiently" when its product meets the objective originally assigned to it. As the school process is designed to select an "elite" it must eliminate the majority who enter it. It is therefore "efficient" if only a fraction terminate their studies.

2/ See "Datos y Indicadores para el Area Educación y Desarrollo Rural : Panama" Monografia No. 1, Serie I, Junio 1978, Projecto Regional UNESCO/ UNDP/ RLA/72/100, pp. 82 and 83.

Finally, children are often "failed" or considered as repeaters because there are no subsequent grades for them to attend as the rural school they go to may simply not go beyond 2 or 3 grades. As 3rd graders stagnate, no 2nd graders can be promoted and thus 1st graders are also "failed" 1/.

Uner the same heading of "efficiency" educational outlay from the public sector will serve as an indicator for the resources devoted to rural education. While, nationwide, Guatemala has shown a rather unusual trend towards a proportional reduction of spending on education, the share of it going to primary education and, by consequence, to rural education, decreased even more rapidly. As seen in Table 5, public outlay for education relatively dropped by more than 50 per cent in the last 6 years, and the relative share of primary education by more than 10 per cent.

Table 5. Total expenditure of the Ministry of education and recurring expenditure for primary education (relative terms) (1972-77)

		1972	1973	1974	1975	1976	1977
Budget of Ministry of Education / Total Government Budget	%	15.09	14.92	14.24	13.54	11.66	9.53
Recurring expenditure devoted to primary education / Total recurring expenditure of Ministry of Education	%	58.08	57.5	60.05	57.70	55.60	52.0

Sources : Op.Cit. "Guatemala. Datos, etc.", Table 13.04, and Op.Cit. A Gutierrez-Reñon, Table 7, p.15.

This trend resulted in the spending, in 1977, by the Ministry of Education some 18 per cent of its budget (U.S. $ M. 13.8) for Primary Rural Education and some 1.5 per cent for Secondary Rural Education. Thus, 20 per cent of the Ministry's budget (some 2 per cent of total Government outlay) was devoted to attending to the schoolchildren of the country's rural population (two-thirds of the total population of Guatemala).

A superficial comparison of the low efficiency of the rural primary-school system and its relatively low cost would show up a rather "acceptable" cost/benefit ratio if it were to be compared, say, to the Government's outlay for Higher Education (in 1977, 18.7 per cent of total Ministry's expenditure, or more than for rural primary education) and the returns based on the unit cost of each university graduate.

Relevance : This dimension should permit measurement of the extent to which the learning process in rural schools is relevant to two criteria : (a) the present environment of the child : his needs, interests and problems, such as he is aware of them within his family or his community, and (b) the future rôle he may wish to play, either in his original rural community or in a different setting, where he may need to seek employment under conditions considerably different than those of the present in familiar surroundings. Indeed, should the replies to these questions be affirmative, one could argue that the State is supplying tomorrow's citizen with tools to improve, and act upon, his present setting and also prepare him for societal or production rôles he may need to play subsequently in his life. The Government would in effect "invest" in change and mobility.

1/ For a remarkable analysis of this phenomenon see "Analísis Sectorial de la Educación", Oficina de Planeamiento y Organisación (ODEPOR), Ministerio de Educación, República de El Salvador, CA, 1974-1977. See also "El Salvador Education Sector Analysis", Executive Summary, Sept. 1, 1977, Agency for International Development, Washington, DC, pp. 2 and 3.

To the first "test" it may be answered that the content, method and spirit dominating rural primary schools are urban-oriented in an academic, linear, rote-learning framework, where neither the community nor the child is a leading 'actor'. The only 'active' rôle is played by the teacher. Who is this teacher? How is he trained and are enough being selected and recruited to alter the rural school atmosphere by shifting its centre of interest towards the community ... before reaching for the "universal"?

The most recent study [1] on Guatemala's teachers informs us that the country preserves the dichotomy between urban and rural teachers, both in their training and recruitment, and that there is an unusual surplus of graduates from urban teacher-training schools when their numbers are related to vacancies. Thus, in 1976, 3,343 teachers were graduated from Urban teacher-training schools and only 190 vacancies were open to them. The situation becomes rather different for rural areas : for 271 graduates there are ... 600 vacancies. In other words, the rural school districts are rural school deserts ... abandoned by children who are accused of dropping out and by teachers who would rather not seek employment than give up their urban roots. As the authors of the study point out : "Teachers are being trained for an urban setting in a country whose priority need is for teachers in the rural areas".

The content of the teacher-training institutions which, in the main, apply the curricular orientation of primary schools laid down by a Government Decree passed some 14 years ago is "theoretical and informative". This has resulted in having teacher-training-school graduates or in-service teachers incapable of "conceptualizing and giving movement to an educational action corresponding to the development needs of the country" [2].

Motivations and quality of training of teachers show up the prevalence of a rather rigid methodological and curricular mould. No wonder then if rural children, usually intimately involved in an environment totally foreign to the classroom, are quick to be discouraged and disheartened before being gradually discarded. It cannot be said that some of the more urgent problems affecting the rural world, and sketchily indicated in the first part of this paper, find the beginning of an answer in a school designed to "produce" white-collar workers, at best, or jobless urban immigrants, at worst.

It would not appear, therefore, that the Government is "investing" much in social change and mobility.

This last issue should perhaps become also the last question related to "Relevance". Did the school contribute to prepare the economically active rural dweller for his productive rôle? Using as an indicator the educational profile of the 876,000 economically active population engaged in agriculture, the following picture emerges from Table 6:

Table 6. Educational Attainment Level of EAP in Agriculture (percentage)

	Percentage
Without schooling	68.1
1 - 3 years Primary	24.5
4 - 6 years Primary	6.2
1 - 3 years Secondary	0.2
4 or more years of Secondary	0.2
Higher Education	0.1
Without reply	0.7

Source: Op. cit. Guatemala, etc. p. 29, Table 707.

[1] "Informe sobre la situación actual del sistema de formación de maestros y propuestas para superarlos", by E. A. Guerrero, N. Baldizon and O. Hernandez de Leon, Ministry of Education of Guatemala/Unesco, May, 1978. See Annexes 6 and 8 .

[2] op. cit., p. 13

The conclusions of this profile, fully corroborated by the information on access and, in particular, by the data on the state of illiteracy, are plain : the school hardly contributed to an "educational stock" potentially liable to facilitate immigration to cities with realistic employment objectives. If schooling can be, in a measure, generator of some expectations it is as an instrument of occupational mobility offering a "second chance" to the rural inhabitant. This clearly is not the case where agricultural workers without primary schooling overlap with the rural illiterates already identified (see Table 3). Between 60 and 70 per cent of the rural population, economically active, has not benefited from any schooling that could have held some relevancy to their economic function.

Some closing words should be written about the Government's efforts to strengthen an admirable bilingual rural pre-primary education programme in the Highlands, where the majority of the Indian population lives. Likewise, some mention should be made of the out-of-school (non-formal) education programme which aims at offering learning opportunities in a production setting to some 300,000 rural dwellers ... by 1982. Finally, reference cannot be omitted to a very promising experiment of participatory surveys leading to the villagers' own definition of their educational needs. Related to the 4 million rural inhabitants without adequate educational coverage, these efforts, for the time being, still remain marginal.

The issue remains open. Education has not been a field where compensatory measures have been taken by the State to restore some social balance between urban and rural populations. It has not been used by the State as an instrument of "social engineering" meant to loosen old structures and herald the introduction of a new mobility.

Inequalities between urban and rural educational opportunities are no more than the faithful image of deeper undercurrents which have fashioned the society and the forces of production of contemporary Guatemala. Development processes in free-market economies generate, inevitably, agressive leading groups who prosper at the detriment of those who cannot keep up or who are not allowed to do so. Often, if not always, those who "fall behind" are the rural inhabitants. In such economic structures some governments devise redistributive measures, so as to spread - perhaps not always evenly - the benefits of growth to those who made it possible thanks to the low price of their labour.

That is not the case in Guatemala, where the school simply reflects the almost institutionalized neglect in which lives rural Guatemala.

In closing, it may not be irrelevant to quote from the basic study [1/] presented to the six countries of Central America at the first meeting on Education and Rural Development and at which were present, for each of the six countries, the Ministers of Education, Agriculture, Labour, Health, Planning and Community Development : "On the one hand, rural areas harbour the heavy majority of the population, generate - through the agricultural sector - the largest share of the national product, absorb the greatest numbers of economically active persons and supply the country with the totality of non-imported food.

On the other hand, it is precisely in these same areas that can be found the neediest sections of the population, living under the lowest levels of income, nutrition, health and housing. As in addition, rural primary education facilities are either inaccessible for the majority of children of the corresponding age group or incomplete for most enrolled children, rural dwellers find themselves hemmed in by such a succession of obstacles that their hostile conditions become truly insuperable".

[1/] "Algunas consideraciones cualitativas y cuantitativas acerca del papel de la Educación en el Desarrollo Rural de los países de Centro America", CEC, Guatemala, Sept. 1977, p. 27.

Problems of educational inequalities in Thailand

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It has long been recognized that the problem of inequalities within the educational system in Thailand is a serious one. There are two basic weaknesses. First, educational services provided by the state are unfortunately both inadequate and unequal with respect to regions and sectors of the population. For example, if enrolment is taken as a measure, the rates for primary school are high on the whole, but there occurs significant variation among and within provinces. Furthermore, students in different areas drop out at different rates.

The other serious weakness is that, as an investment, the present educational system serves private more than social goals. Whereas the first weakness concerns inequalities in educational opportunities, the second relates to national educational policy which at present is not geared to the proper development and training of national human resources. While university-oriented preparation is adequately provided by state services, true vocational training has not been given sufficient emphasis as an educational priority. This situation results in the following general consequences:

(a) Non-university education is not a realistic alternative while a university degree remains the only educationally derived means for social mobility. Because university degrees are over-valued, vocational curricula have become too academic. Thus vocational training is not geared to the needs of the labour market but produces either students who go on to universities or students with inappropriate skills.

(b) National resources are inefficiently, often inappropriately, used in the development of human capital. As higher education takes up relatively more of the limited resources, obviously less is left for the development of the larger segments of the population. The present educational system thereby does little more than reinforce existing maldistribution in the socio-economic structure.

In planning the development of education at various levels, educational planners have become increasingly concerned with equality of opportunity. The trends giving more weight to equality reflect a broader public concern about inequalities in income and in public services. For the first time, the Fourth National Economic and Social Development Plan (1977-1981) gives explicit and serious recognition to the problem of disparities in the standards of living of different population groups, in particular between the urban and rural population. At the same time, an Education Reform Committee was appointed in 1975 to conduct a comprehensive review of education and to make a series of fundamental recommendations for change. The recommendations provided the basis for the education sector plans in the Fourth Plan. It does not, however, go so far as to commit itself in quantitative terms as to the size of the reduction in disparities that will be achieved during the period of the Plan. Aside from expansion of enrolment for all levels of education, the existing system is being modified so that it becomes more closely related to the other facets of economic and social development. This implies linking the educational system to local conditions, creation of greater flexibility in educational administration, forging a link between in-school and out-of-school education and providing educational facilities in line with the needs of the labour market.

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The implementation of the recommendations would certainly be an important step towards the equalization of educational opportunity and the improvement of the educational system. With the change of the school system from 4-3-3-2 to 6-3-3, the extension of compulsory education to six years, and the curriculum reform starting in 1977, it is hoped that by 1983 when changes are completely implemented, evaluation will be made to find out whether or not the reform is sufficiently effective and if the reduction of educational inequalities - one of its main objectives - has been fulfilled.

I. INADEQUACIES AND INEQUALITIES IN EDUCATIONAL OPPORTUNITY

At present, considerable problems and obstacles can still be found at all levels of education. The most crucial ones include shortages of schools, classrooms, textbooks, learning materials, and teaching equipment as well as experienced teachers. If one looks at enrolment figures, they tend to be very high for lower-primary schools. This implies that the government has succeeded in getting most children into school for the compulsory four years of primary education. However, the 1970 Population and Housing Census reveals that the average amount of schooling for the population 6 years or older was only a little over 3 years, and even for Bangkok the number was only 4.6 years. The situation has improved somewhat judging from the rate of school attendance among school-age population which has risen from 34.2 per cent in 1970 to 39.4 per cent in 1977.

Available data show that educational opportunities are not equally distributed either in quantity or quality. Although over 80 per cent of the population over 10 years old are literate, in a few of the 70 provinces, the literacy rate is only about 40-50 per cent. All the provinces with literacy rates below 70 per cent are in remote areas in the North and the South, and include all four southern provinces which are predominantly Muslim. Close to 90 per cent of the male population are literate compared with only 75 per cent among the females. The proportions are considerably higher for urban than rural areas.

When we look at the average number of years of schooling for the population who are six years or older in all the provinces, this ranges from under one year to over four years.

Again, the lowest figures are found in the remote provinces of the North and the South. Among the female population, the average number of years of school completed, as of 1970, was only 2.8 compared with 3.5 for males. The proportion of the population with no schooling describes a similar pattern.

Turning to enrolment figures, we find large variations. For some twenty provinces, the enrolment rate in 1975 was under 30 per cent, most of them being in the North and the Northeast, while for eleven provinces, all of them in the Central-East and the South, the rate is over 50 per cent. Figures for secondary-school enrolment show even greater disparities. A much lower percentage of lower-primary-school graduates in the Northeast and the North find places in upper-primary schools compared to the South and the Central Plain. By far the most important reason for dropping out after the fourth grade is the lack of upper-primary schools in the areas.

If we look at some indicators which serve as measures of the quality rather than quantity of educational services provided, much, although admittedly less, variation is observed. Average scores on achievement tests are about twice as high in Bangkok as they are in the Northeastern Region, and are considerably higher than in the rest of the country. In the Northeast, schools are smaller, more crowded, farther from home, less well staffed and with smallest material budgets per student. Nonetheless, it should be noted that the average qualifications of teachers in primary schools are remarkably uniform across provinces, the lowest being 12.2 years of schooling while the highest is 13.2 in Bangkok. School teachers have, therefore, on the average, completed twelve years of schooling but not more. Teachers who have obtained advanced teaching credentials tend to move on to schools of higher levels.

Similar regional disparities exist at the higher levels. In 1973, for example, although Bangkok had only 10 per cent of the population, students whose parents live in Bangkok accounted for 77 per cent of university entrants. Although the farming population is more than two thirds of the national total, at present only 6 per cent of the students in higher education come from farm families.

An examination of government expenditures on primary education per capita shows a great deal of variation across provinces, both for current and capital expenditures. There is, moreover, a strong positive correlation between current and capital expenditures, resulting in a 4.5 - fold difference between provinces with the highest and lowest per capita expenditure on primary education. Moreover, the gap is widening. Provinces with high per capita income tend to be those of which population have had more schooling. They also have higher per capita expenditures on primary education. More importantly, they have higher enrolment rates at the upper-primary and secondary levels, smaller student/teacher ratio and better qualified teachers, although they have larger classroom sizes. Therefore, they have a larger percentage of lower-primary students continuing to upper-primary schools. In addition, they manage to obtain proportionately more for upper-primary school development than provinces with fewer upper-primary schooling opportunities.

In general, it is the relatively affluent provinces, not the poor ones, which obtain the largest subsidies per student. It is of no surprise also that the provinces with higher incomes tend to receive more of all types of social services, health and communication as well as education. Hence, the distribution problem is aggravated further from all directions.

II. IDENTIFICATION OF CAUSES AND MEASURES FOR CORRECTION OF INEQUALITY IN EDUCATIONAL OPPORTUNITY

In analysing the situation and looking for solutions for improving the distribution of education services among the population, we see that existing imbalances are due to several factors:

(a) Factors related to home environment

Children from rich and poor environments, though exposed to similar standards of education, will usually differ in learning outcomes and hence chances for attaining higher education, jobs and prestige. It is a universal phenomenon that wealthy families can easily afford to pay school fees, purchase textbooks and provide proper nutrition and health care. In contrast, poverty discourages school attendance and stifles learning. Poor families often cannot afford to release their children from productive work to attend school regularly or to pay for school fees, uniforms, books and transportation. Parents who are illiterate often have low educational aspirations for their children. There are few, if any, reading materials in the house. There is little perception of the value of schooling and, hence, little encouragement for children to succeed in school.

To achieve effective universal primary education and reduce the disparity of opportunity between socio-economic groups, not only must educational materials be provided for all primary students, but it is also necessary to give supplementary grants to needy students to cover transportation, lunches and other school expenses. Special assistance is needed by families in urban slum areas and in remote rural areas where deprived homes fail to give children a reasonable start in learning to read or where the children's first language is not Thai. As a means of equalizing access to secondary schools and universities, a system of geographic quotas, expanded scholarships, and supplementary grants to cover transportation and boarding costs should be expanded.

(b) Factors related to distribution of government expenditures among regions

As is true for all social services, the serious inequality of educational opportunity between geographical areas can only be reduced if changes are made in the method of allocating grants to the different provinces. The present system where annual grants for recurrent expenditures are based on enrolment numbers and salary bills (with an allowance for growth) results in the more disadvantaged regions with few qualified teachers obtaining less support from the government. To correct the existing inequality, not only must the system of allocating recurrent expenditures be changed to equalize the quality and quantity of educational resources available to the different provinces, but capital grants and other assistance are necessary to enable disadvantaged provinces to build additional upper-primary and secondary-school facilities commensurate with the school-age population.

(c) Factors related to distribution of government expenditures among different levels of education

At this time when universal primary education is not yet achieved, too much is invested in the expansion of upper-secondary and higher education. The higher the level of education, the higher subsidy per student is provided. It is disputable whether resources have thereby been productively employed. As a matter of fact, it has been argued that they have not. Regardless of whether higher education is socially beneficial at the aggregate level, it is obvious that from the point of view of equity higher-income families stand better chances of receiving more of the higher education services.

The system is also not providing the basically agrarian population with appropriate skills. The adoption of more intensive methods of agricultural production requires farmers with enough schooling to be able to change their farming methods. For most farmers, however, primary education is limited to four years or less while it has been shown that total output of rice by farmers with more than four years of education was substantially greater than output by farmers with no schooling. Both to increase productivity now and to train the kind of farmers needed for future agricultural development, the expansion and improvement of rural primary education should be the major priority of educational development. Sub-professional technicians are also needed in other fields.

Serious efforts have been made over the years to adapt the educational system to the development needs of the majority of the country. The Government has invested in agricultural and technical schools to train more extension workers and middle-level technicians. Finding that vocational-school education was considered second-class education, the Government opted for diversified schools that might expose all students to a certain amount of practical education. It set up mobile trade training schools to bring nonformal vocational education to rural areas. Students in these schools, however, prefer to aim for degrees; thus, many of these schools no longer produce the kind of graduates that were most needed and the rural mission has been lost.

(d) Factors related to selection method

Examinations play an important part in screening out poor students. Entrance examinations at all levels automatically eliminate most poor students from rural families in favour of those who have attended private schools or larger city public schools. The reasons are not only those already cited under (a). As a result of a highly centralized educational system, educational syllabi as well as teacher's manuals and textbooks have been developed by the Ministry of Education in Bangkok and often include information which is of little relevance to students of under privileged families and/or of certain regions.

For these reasons, restructuring of the curriculum to a course-work-and-credit system was introduced at the upper-secondary level in 1975. This was conducive to changes in the examination system. Internal assessment by the individual schools has been implemented in the school system ever since. As has been mentioned earlier, it is expected that the curricula, including examinations, will be changed along the same line at all educational levels by 1983.

The above notwithstanding, admissions method is still based on scholastic achievement in most types of schools. Experience has indicated that the agricultural schools and agricultural colleges, for instance, have produced sufficient numbers of graduates, but most of them have urban backgrounds and either go on to higher studies or take jobs in fields other than agriculture. Evidently much waste has resulted from such training. Instead of the present system, more students with rural backgrounds and interests should be recruited for these institutions and their study should be limited in duration, directed at practical employment needs, and contain a large measure of field work. Similarly vocational education for trade and industry should be redirected in order to offer courses for job-entry training, on-the-job training, or upgrading course for those already employed.

The expansion and improvement of out-of-school and nonformal education programmes should be implemented as soon as possible to help reducing inequalities in education. The on-going activities such as the Functional Literacy Programmes, the Village Reading Centres, and the Vocational Training Courses including the establishment of Job-core Centres, should be strengthened.

Reducing educational inequalities will require many years and the co-operative efforts of several Government and non-governmental agencies. The problem is not only in the area of education but in the whole question of economic and social planning and what is to be achieved. Without careful and deliberate planning and the resetting of national priorities, it is clear that the line of least resistance will be followed. Development funds earmarked for the provision of social services thus continue to flow into urban areas which also happen to be high-income areas. Only if the existing tendency to treat the rural population as second-class citizens is drastically set aside and a conscious policy is instituted, will the conditions of the rural population be improved and disparities kept from widening further.

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Inequalities in education and employment

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I. INTRODUCTION

The theme of social inequalities is a recurrent one in the literature of social sciences. Its boom usually follows periods of economic prosperity. Thus the economic growth decade of the sixties was followed by the inequality concern of the seventies. [1] And as it usually happens, this theme was first developed in advanced countries and then quickly transported to developing countries.

What I would like to do in this paper is review some of the key issues centring around inequalities in education and employment in developing countries and suggest some areas that should receive research priority. In doing so, I first point at the normative aspect of the inequality debate, explain the use of alternative measures of inequality and their fallacies and use plenty of numerical examples from LDC's as well as DC's on particular aspects of inequality.

II. THE NORMATIVE ASPECT OF THE INEQUALITY DEBATE

Before embarking on a discussion of inequalities of any kind the reader should be well aware of the normative character of the debate: What looks "unequal" to one person might look "more equal" to another person. For example, consider the first row in Table 1 that shows the value of the Gini coefficient for urban India in 1968, being equal to .46. How unequally (or, perhaps, equally) are incomes distributed in India?

Table 1. Gini Income Inequality Measures in India, Iran, the U.S.A. and the U.K.

Country	Sample coverage	Year	Gini coefficent
India	Urban	1968	.46
	Urban	1955	.42
	Rural	1968	.48
Iran	Urban	1968	.50
U.S.A.	National	1966	.40
U.K.	National	1968	.34

Source: Jain (1975), pp. 52, 54, 56, 115, 116.

[1] For a quick review of the proliferation of the literature in this respect, see Atkinson (1975)

Obviously one cannot answer this question from the value of the Gini. What one must consider in addition to the Gini, is how heavily equality weighs among one's values. Or, to put it technically, with what weight equality enters into one's welfare function. [1/] The less one values equality, the more equal the distribution of income will look to his eyes, regardless of the exact value of the Gini. To put it in other words, there is no absolute standard of the degree of economic (or any other) inequality in our society. The degree of inequality or equality depends upon our values.

To reverse the same argument, the proliferation of the literature on inequalities of different kinds in recent years means that even "small" values of the Gini would appear as representing "very unequal" distributions to some observers or that the world community has shifted its concern towards the way incomes are distributed.

III. THE RELATIVE VALIDITY OF INEQUALITY MEASURES

Although there exists no absolute standard of inequality, the different indices that are available in this respect (like the Gini we considered above) have a benchmark value for interregional, international or simply over-time comparisons. For example, the figures in Table 1 show that income distribution has worsened between 1955 and 1968 in urban India and that urban incomes are distributed more equally than rural incomes.

Similarly, Indian officials may compare their country's position to that of Iran and be happy (or, depending on their values, possibly unhappy?) that India is less unequal than Iran and regret (?) the fact that India is more unequal than the U.S.A. and the U.K.

But even if we accept the relative validity of Gini differences over time or between regions, [2/] what significance shall we attach to differences such as .04 Gini points? Does the .04 Gini points difference in India between 1955 and 1966 represent "a lot" of extra inequality or just "a little bit"? Clearly such questions lead us back to the normative aspect of inequality comparisons, something that must be borne continuously in mind when considering the relevant indices and, alas, something that is so often forgotten.

IV. SOME PROPERTIES OF COMMON (AND LESS COMMON) INEQUALITY INDICES

Let me use a simple numberical example to demonstrate the fact that the degree of inequality depends upon the choice of the inequality measure and that all inequality indices embody (implicitly or explicitly) value judgements about what constitutes a more equitable or less equitable situation. Consider a society of three persons with income levels of $50, $100, and $1,000, respectively. In Table 2 I have labelled this the "original" distribution. What is of interest, is how this state of income distribution will change after a particular policy that amounts to income transfers from a richer person to a poorer person. (N.B. Although income was chosen for the sake of this example,

Table 2. A comparison of alternative inequality measures

Distribution before and after policy	Income of			Variance		Gini	Atkinson
	Mr. A.	Mr. B.	Mr. C.	Absolute	Log		($\epsilon = 2$)
Original	50	100	1,000	190,556	1.640	.550	.75
D1	70	80	1,000	190,156↓	1.497↓	.539↓	.72↓
D2	50	120	980	178,822↓	1.560↓	.539↓	.73↓

Source: Simulation example (See text).

[1/] This point is further elaborated in Section IV, below.

[2/] This validity has been challenged as explained in Section IV, below.

the distribution could refer to anything, such as the distribution of years of educational attainment in the population or access to particular schools in different regions of the country). Two possible such policies are considered in this respect and the equality effects of each policy are compared to the original distribution by means of four alternative indices.

Both policies amount to a $20 transfer from a richer to a poorer person. Policy D1 amounts to a transfer from the person who is in the middle of the distribution to the person at the bottom, whereas policy D2 amounts to a transfer from the richest person in this "society" to the one in the middle.

The most common statistical measure of comparing the degree of dispersion of the two distributions relative to the original one is the variance of absolute incomes (or the standard deviation, or the coefficient of variation, all of which give similar ranking orders relative to the point I wish to make here). The result is that policy D2 is more equitable than policy D1 in the sense that the latter gives a lower variance than D2. (See Table 2). The length of the downward pointing arrows shows visually the relative strength of each policy in reducing inequality according to a particular index. However, if we adopt the variance of the logarithm of earnings as an alternative inequality measure, the above statement is reversed. As shown by the relative strength of the arrows, policy D2 is more equitable than policy D1.

Let me hasten to add, that there exists no objective answer to the question: What index is better? The answer depends upon one's values and these values have already been implicitly incorporated in the two inequality measures.

A third common measure of inequality is the Gini coefficient. Application of it to our hypothetical distributions gives a third kind of result, namely that both policies are equally effective in reducing inequality: Yet distribution D1 is clearly very different from distribution D2. This is the classic insensitivity case associated with the Gini coefficient and depicted in Figure 1.

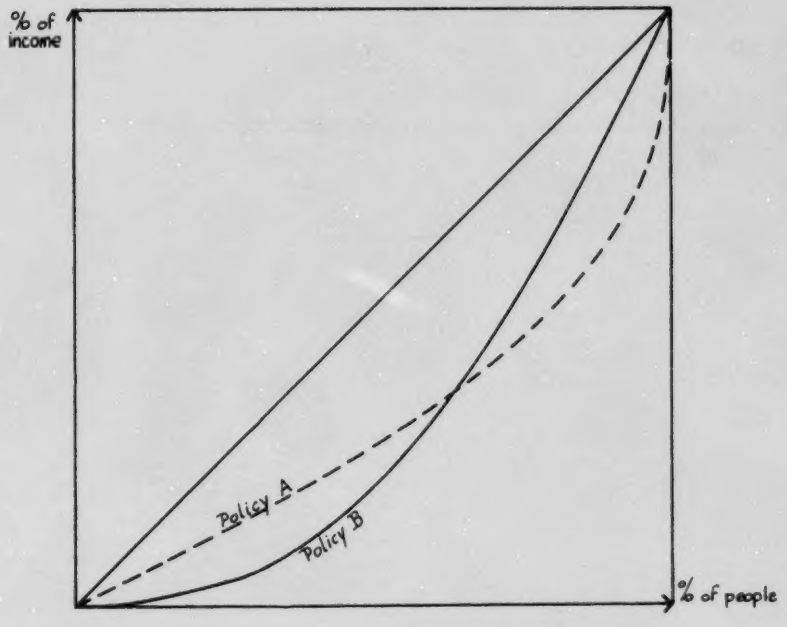


Figure 1. The insensitivity of the Lorenz curve as a measure of inequality

The implicit value judgements associated with the common inequality indices and the insensitivity of the Gini have been somehow removed by the recent Atkinson inequality measure. [1/] The formula for its derivation (the explanation of which is beyond the scope of this paper) contains an explicit parameter ϵ for the value one puts on equity (or inequality aversion). The higher the value of ϵ, the more unequal any given distribution will be judged. What is perhaps more important, is that the algebraic specification of the underlying welfare function is such, that transfers at the lower end of the distribution count more heavily than transfers at the top. Thus, assuming (arbitrarily) a weight of $\epsilon = 2$ in our numerical example, we get the same result (see Table 2) about the two alternative policies as in the case of the Varlog inequality measure: namely policy D1 gives a more equal distribution relative to policy D2.

I conclude this section by advocating greater use of either the Varlog and the Atkinson inequality measures, relative to the absolute varieance and the Gini.

V. THE TRADE-OFF BETWEEN EQUALITY AND EFFICIENCY

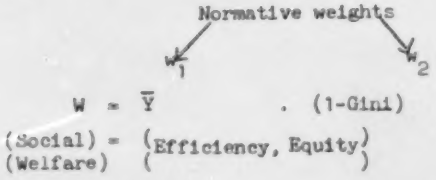
Another issue that is seldom if ever made explicit in inequality discussions, is the possible trade-off between equality and efficiency. It is unlikely that a particular policy geared mainly towards the reduction of inequality of any kind would be neutral regarding its efficiency effects. For example, it is often thought that the reduction of inequality will be accompanied by a loss of efficiency (i. e. sharing the pie between too many recipients reduces the size of the pie as well). This is not always true, however, and the first point made here is that one should try to assess empirically the algebraic sign of the trade-off. The second point is that if a negative trade-off exists, one must specify the relative weights one puts on efficiency and equity. For example, if one puts a lot of weight on equity, then a big efficiency loss following a particular policy might be offset by the inequality reduction.

Therefore, the issue of efficiency trade-offs can be broken down into two sub-issues:

(a) A positive issue, namely, is there a trade-off in the first place and what is its direction and magnitude?

(b) A normative issue, namely what is one's value judgement on how much efficiency is worth relative to what equity is worth?

To put it more technically, one is faced here with (a) an empirical question on how efficiency (e. g. per capita income, $\overline{Y}$) will be affected by a given policy that reduces an inequality measure (say, the Gini in the following formula that represents social welfare) and (b) a value judgement, namely what weights (w_1 and w_2) to attach to the two arguments of the social welfare function (W)?



Admittedly, the adoption of social welfare weights is a very difficult task, if not completely arbitrary. But how often are we told about the possible efficiency effects of a particular policy geared towards equality?

I would like to cite in this respect a recent study by Adelman and Robinson (1978) in which they simulate the effect of alternative policies on a large number of variables of the Korean economy. Table 3 presents a sample of their findings, i. e. a comparison of the efficiency and equity effects of a tax policy and an educational policy. Although the size of the effects of either policy is by no means dramatic (and I commit myself to a value judgement at this point) the signs of the changes'

[1/] See Atkinson (1970) and for an application to a developing country Psacharopoulos (1977 a).

direction constitute a textbook demonstration of trade-offs in the equity-efficiency quandary. That is, both policies reduce the corresponding inequality measures. But it is only the educational policy that has a beneficial efficiency effect (in the sense of increasing per capita income).

Table 3. Efficiency and income distribution effects of two alternative policies

Policy	Change in per capita income %	Change in the value of the Gini
1. Double direct tax rates on households and halve indirect tax rates	- .5	- .003
2. Upgrade the skill composition of the labour force (a)	+ .5	- .006

Source: Adelman and Robinson (1978). Policies refer to comparative statics A. 1 and D. 5 in the above source.

Notes : (a) This policy represents an increase in the supply of engineers, technicians, skilled workers and white-collar workers by 10 per cent each and a reduction of the number of unskilled workers correspondingly.

VI. THE COMPONENTS OF INEQUALITY IN EDUCATION AND WORK

The area of inequalities in education and work is vast and therefore I have tried to set up here a taxonomic device that will hopefully enable us to easily trace the variety of inequality components. Table 4 specifies four time periods within which such inequalities can be observed:

(a) Before schooling starts. Inequalities in this case take the form of group disparities or opportunity of access to different levels of education. The foremost exogenous variables considered here are the child's genetic ability, his family background, regional origin and, of course, sex. Family background can in turn be measured as family income or the hierarchy (or goodness, or prestige rating, or desirability) of the occupation of his father. Evidently, these measures correlate highly with the urban-rural origin of the child.

The usual analytical "tool" for researching the area of inequalities before schooling is percentage distribution comparisons, e. g. what part of the population has a father who is a farmer against what part of the population gets access to a particular school.

(b) During schooling. Inequalities in this case take the form of unequal performance of children within schools, such as differences in verbal and mathematical achievement or the eventual level of educational attainment they reach. Wastage and repetition are also treated here and these "dependent" variables are related not only to school-specific variables (such as teachers and equipment) but also to the previously specified ultimate exogenous variables (such as sex and family background).

The analytical tool par excellence for analysing inequalities in this area is the "educational production function", a term much loved by economists (because it links to their home literature) but hated by educationalists (as they claim education "produces" much more than what usually appears on the left-hand side of such functions).

Table 4. A taxonomy of inequality components in the area of education and work

Time of occurrence	Research labels	Main variables considered
Before schooling	Group disparities, Differential access Equality of opportunity	Genetic ability Family background Regional origin Sex
During schooling	Educational production functions, Wastage	School achievement Promotion Repetition, Grades Terminal educational attainment
After schooling	Income distribution, Earnings functions, Success in life	Labour earnings Goodness of an occupation Employment opportunities
Lifetime	Path analysis, Recursive models	All above in time sequence

(c) After schooling. Inequalities here take the form of adult: income disparities; employment opportunities; or "success in life". Income disparities have been extensively dealt with by economists in the last 10 years or so, mainly under the research headings of "earnings functions", or discrimination. Employment opportunities and job conditions have received increased attention only during the last 5 years and are analysed under the headings of "dual labour markets" or "youth unemployment". "Success in life" has been a parallel activity by sociologists that has been going on for many years. Their essential concern has been the same as that of economists, although their main dependent variable was the prestige rating of an occupation instead of just the monetary earnings associated with it.

In recent years, however, the work of sociologists is analytically very similar to that of economists and both teams proceed to analyse the same social phenomenon (in this case adult disparities) in a true interdisciplinary way.

(d) Lifetime. Under this heading come analyses that attempt to treat all disparities listed above in a simultaneous way and thus avoid obvious overlaps, or gain new insights (if not obtain more correct and unbiased statistical measures). The analytical tool par excellence in this respect is "path analysis", something imported mainly from sociology, although economists have been using it for many years under the label of "recursive models". The form of path analysis, however, and the measurement of variables in a standardised way (i.e. as deviations from the mean divided by the standard deviation) are more intuitive and make easier the interpretation of the results.

Figure 2 recapitulates in a path diagram form the different components of inequality we shall trace in the rest of this paper. In each of the four sections that follow we shall give a few key results and an evaluation of the research state.

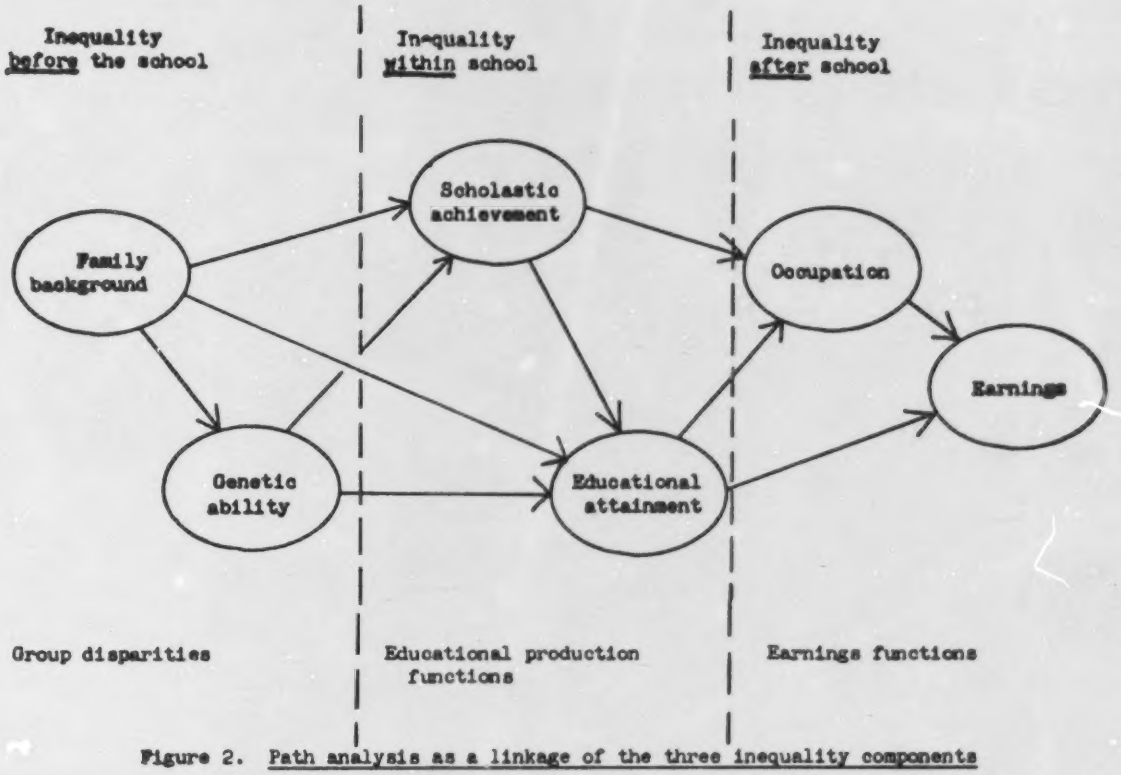


Figure 2. Path analysis as a linkage of the three inequality components

A. Inequalities before schooling

With the only possible exception of monozygotic twins, people are born unequal: they differ in weight, colour, sex, family background and genes. The question we are interested in, is whether through some kind of policy one could reduce the unequal chances they have towards success later in life. (It should be noted that this is a big value judgement, as what I consider "success" might not in fact be shared by other people). This could be done via compensatory policies towards poor family background or genetic ability. What are the facts in this respect?

It is my contention that inequalities in education start from differential access to the nursery school. For it is believed that the sooner the child is partly removed from an adverse family background, the better are his chances of catching up with children from more prosperous backgrounds.

I am not aware of studies of access to nursery school by family background or region in LDC's, but Table 5 sets the introduction to the access disparities theme by presenting population projections of different schoolage groups in developed and developing countries. It will be remembered that in DC's nursery education is by no means universal, yet the young-age population in LDC's is expected to grow at three times the rate of the corresponding population in DC's.

In view of the existent pressure towards allocation of educational funds to the higher levels of schooling, I predict that nursery education will not receive the attention it deserves in the LDC's in the near future. What is needed here is research on its potential compensatory value against adverse socio-economic background.

Table 5. Average annual rates of growth of selected population groups (percentage)

Age group and country type	1970–1980	1980–2000
Developed countries		
5 - 9	- .6	.5
10 -14	- .8	.6
20 -24	1.3	0.0
Developing countries		
5 - 9	2.1	1.6
10 -14	2.1	1.9
20 -24	3.1	2.3
World total		
5 - 9	1.6	1.4
10 -14	1.5	1.7
20 -24	2.6	1.8

Source: Unesco (1976), Table 1.2

Note: Developed countries include all European countries, U.S.S.R., U.S.A., Canada, Japan, Israel, New Zealand and South Africa. Developing countries include the rest of the world.

When we move from nursery education, the evidence becomes more apparent although it is by no means abundant. Table 6 shows huge enrolment disparities in Brazil between different regions, economic sectors and socio-economic groups. (The reader should treat the last two columns of this table as evidence belonging to the following sections of this paper). Table 7 documents the same point regarding socio-economic background for Tunisia. And so does Table 8 for Kenya.

The differential participation rates to higher education of different socio-economic groups are linked to another trend of inequality - the tax-subsidy finance structure. Whereas all citizens pay taxes, and the more prosperous groups much more than the rest of the population, it is the most prosperous groups that mostly send their children to higher education. It has been found in developed countries [1/] that the effective subsidy rich people receive this way is more relative to the taxes they pay when compared with the less prosperous families. This has clearly been found to be the case in Kenya (Fields 1975) and we also have a study on Brazil (Jallade 1977). But what about other countries?

A research theme I would like to see avoided in the LDC context is the genetic ability - environment controversy. This is an issue that has not yet been settled in DC's [2/] and I just cannot see how this could be answered by the kind of data that are available in LDC's. Furthermore, if this question is ever settled in DC's, the results should also apply to LDC's as this is an issue of human nature rather than of conditions specific to a particular country.

[1/] See Hansen and Weisbrod (1969), Hight and Pollack (1973)

[2/] For a collection of essays on this topic see Taubman (1977)

Table 6. Selected inequalities in Brazil

Population characteristic		Enrolment ratio in basic education	Average number of years of schooling	Monthly earnings (in 1970 Cruzeiros)
Males	Non-farm	78	4	873
	Farm	45	1	252
	Low SES, non-farm	63	2	247
	Low SES, farm	37	1	91
Females	Non-farm	77	3	380
	Farm	45	1	112
	Low SES, non-farm	64	2	167
	Low SES, farm	37	1	64

Source: Jallade (1977), Table 1

Table 7. Distribution of students by father's occupation, Tunisia (percentage)

Educational level	Occupational rank	
	Highest	Lowest
Primary	1	44
Secondary	6	17
Higher	11	12

Source: Simmons (1974), Table 10.

Table 8. Parental characteristics of higher education students in Kenya

Parental characteristics	University students (percentage)	All adult males
Father in high or middle level occupation	35	3
Father is secondary school + graduate	22	2
Father owns 25+ acres of land	38	7

Source: Fields (1975), Table I.

B. Inequalities during schooling

Once children have gained access to a particular school, further inequalities develop that may hamper their performance in school, reduce the level of their eventual attainment and hence their later "success" in life. These issues are analysed in the context of educational production functions that relate a measure of school achievement (say, the verbal score) to a set of independent variables (such as student, teacher and school characteristics), e. g.

$$\text{Verbal score} = f\left\{\begin{matrix}\text{student's IQ} \\ \cdot \\ \text{teacher's qualifications} \\ \cdot \\ \text{school teaching equipment}\end{matrix}\right\}$$

There exist two good reviews of educational production function work - one for the United States by Averch et al. (1974) and one for developing countries by Alexander and Simmons (1975).

The results obtained from these functions are very mixed. Starting from the Coleman (1966) report, background and family factors tended to dominate school-related factors in educational achievement. Jenck's (1972, p. 53) work concluded that "educational inequality does not explain cognitive inequality to any significant extent. The amount of schooling an individual gets has some effect on his test performance, but the quality of his schooling makes extraordinarily little difference." Brown and Saks (1973) however, claimed that one of the reasons school inputs appear to be ineffective in relation to school output (i. e. achievement) is that the observations mostly consisted in whole class scores, rather than the test scores of individual students. Although the mean test score for a whole class can remain unchanged, the distribution of test scores within the class can be affected.

Regarding less developed countries, the estimates we have until now in our hands (based mainly on the Alexander and Simmons survey) indicate the following:

- The results for LDC's are not very different from those for DC's.
- Home background has a strong influence on student performance at the primary and lower-secondary grades.
- More and better teaching facilities do not seem to affect dramatically the rate of learning.
- The positive "student - peer effect" is not as conclusive in LDC's as it is for DC's.
- Boarding facilities are likely to improve student performance as this policy amounts to removing the student from an often adverse, non-conducive to study, home environment.
- It cannot be confirmed that class size affects adversely student performance.
- Teacher qualifications are more important for student achievement at the upper-secondary level than the lower levels of education.
- Expenditure per student is not an important predictor of student achievement.
- Textbook availability is an important predictor of achievement at the primary level.

Typical results of educational production work are presented in Tables 9 and 10. Table 9 shows the total variance explained and the proportion thereof explained by schooling variables. Although the figures are impressive, it is not yet clear in what kind of country context (DC or LDC) school variables explain the most. But as Table 10 indicates, background variables significantly correlate to pupil performance in Uganda.

My own reaction to educational production function work is that it relates too much to what a whole class is doing, i. e. how the bad students and the good students will be affected by the availability of more textbooks (a common "independent variable" in such work). What I would like to see is focus on the low achievers only, experimentation with provision of more textbooks to them and observation of the results after some period of time. In analysing the whole student population one may fail to isolate the effect of policy variables on the "target group", which in this case is the low achievers.

Table 9. Total variance, proportion explained by school effects, and the proportion within the explicable variance attributable to school effects in 18 nations

	Proportion of total variance explained	Proportion of variance explained by school effects	Proportion within the explicable variance attributable to school effects
Uganda	10	3	31.7
India	24	8	33.3
Iran	17	9	52.9
Belgium (Fr.)	26	12	46.2
Thailand	37	23	62.2
Italy	24	6	25.0
Chile	25	6	24.0
Hungary	31	5	16.1
Australia	39	11	28.2
New Zealand	45	8	17.7
West Germany	34	14	41.2
Sweden	36	7	19.4
Netherlands	49	10	20.4
Finland	44	10	22.7
USA	36	7	19.4
UK	52	7	13.5
Japan	40	4	10.0
Scotland	55	9	16.4
Mean	36	9	25.0

Source: Heyneman (1976 a), Table 5.

Table 10. Correlations between socio-economic measures and pupil performance in Uganda

Socio-economic measures	with English language test
Mother's education	.12
Father's education	.17
Father's occupation	.17
Possessions in the home	.11
Summary socio-economic status	.16

Source: Heyneman (1976 b), Table 2

Note: All correlations are highly significant.

C. Inequalities after schooling

This is the part of the inequalities' sequence in Figure 2 that has received the major research attention in both DC's and LDC's.

The analysis takes the form of explaining income distributions, the unit of observation being the household, the region or the individual. The analytical research tool is the "earnings function" which relates the earnings of a particular income recipient unit (say, a wage-earner) to a string of personal characteristics, e.g.

Earnings = f (Age · Schooling · Other characteristics)

The use of earnings functions has necessarily shifted attention from the use of the Gini coefficient as an inequality measure to that of the variance of the logarithm of earnings. This measure has the properties described earlier in this paper and is by no means the best available. But it has the great advantage of computational convenience, namely one can simulate alternative income distributions using packaged statistical programmes (such as the SPSS).

A review of earnings functions, their properties and applications in advanced countries is found in Psacharopoulos (1975 a). A review of eleven LDC earnings functions cases is found in Psacharopoulos (1976 a). Since then, a flood of earnings functions applications has appeared in the literature, to the point of being difficult to keep track of them. (See Table 11).

The obvious question that arises is: what have we learned from the prolific application of such functions? The following is a succinct answer:

(a) The total explanatory power of the usual string of variables considered is of the order of 40 per cent, it seldom rises to 70 per cent and practically never exceeds this figure. Table 11 gives a list of R^2s from these functions. What the value of total explanation means, is that there remains a great deal of income inequality that is unaccountable by our measured independent variables or, there remains a great deal of randomness in the way individual incomes are generated. Of course, to go one step further from this statement and interpret the randomness as "luck" (à la Jencks) is equivalent to stretching one's imagination.

(b) One of the most important variables in explaining earnings is age or its experience transform. (Experience = Age, minus years of schooling, minus compulsory school entry age).

(c) Schooling is nearly always a significant variable in earnings function work, although the size of the corresponding coefficient has been subject to controversy. Consider for example an earnings function result for Morocco (Psacharopoulos 1977 b, Table 2, regression R^2.)

$$\ln Y = 5.363 + \underset{(.005)}{.158\,S} + \underset{(.006)}{.079\,EX} - \underset{(.00001)}{.001\,EX^2},\quad R^2 = .44$$

where S stands for the years of schooling of the individual worker,
EX for the years of labour market experience and where numbers in parenthesis are standard errors.

How should we decide on whether the .158 coefficient of years of schooling is on the "high" or the "low" side? The answer in this case is that it is on the high side since the particular specification of the function (semi-log) is such that the coefficient on S is interpreted (after some simplifying assumptions are made) as the private rate of return to investment in schooling, which is equal to 16 per cent in this case. Table 12 shows a collection of coefficients on S in earnings functions for LDC's.

The earning's functions literature has grown spectacularly in the last 5 years (especially on off-beat U.S. applications) and is beginning to show its limits. The perennial limits have been those of simultaneity (i.e. supply and demand, rather than just supply factors determining the equilibrium work period and wage rate) and the association versus causation interpretation one can give to the results. Recent attempts to validate the existence of labour market segmentation using the

Table 11. Total explanatory power of earnings functions in developing countries

Country	R^2	Source
Brazil	.50	Vellosso (1975)
Colombia	.57	Fields (1976)
Colombia	.32	Fields and Schultz (1977)
Colombia	.24	Kugler et al (1977)
Cyprus	.44	Demetriades and Psacharopoulos (1978)
Iran	.84[g]	Psacharopoulos and Williams (1973)
Kenya	.42	Thias and Carnoy (1972)
Mexico	.73	Carnoy (1967)
Malaysia	.80[g]	Hoerr (1973)
Morocco	.44	Psacharopoulos (1977 b)
Peru	.50	Toledo (1975)
Singapore	.50	Liu (1975)
Singapore	.37	Fong (1976)
Taiwan	.55	Gannicott (1972)
Thailand	.51	Blaug (1974)
Turkey	.16	Kasnakoğlu (1978)
Vietnam	.16	Stroup and Hargrove (1969)
Yugoslavia	.54	Thomas (1976)
Nigeria	.34	Hinchliffe (1976)

Notes: (g) indicates use of grouped data, hence the high R^2.

R^2's are not strictly comparable due to the different independent variables used in each study.

Table 12. The coefficient on the coefficient of schooling in semi-logarithmic earnings functions applied in developing countries

Country	$\frac{\partial LnY}{\partial S}$ (%)	Source
Brazil	17.2	Velloso (1975)
Colombia	16.1	Fields (1976)
Colombia	16.9	Fields and Schultz (1977)
Colombia	9.9	Kugler et al (1977)
Cyprus	12.5	Demetriades and Psacharopoulos (1978)
Iran	5.7	Psacharopoulos and Williams (1973)
Kenya	4.8	Thias and Carnoy (1972)
Malaysia	5.3	Hoerr (1973)
Morocco	15.8	Psacharopoulos (1977 b)
Mexico	15.0	Carnoy (1967)
Taiwan	6.0	Gannicott (1972)
Thailand	4.6	Blaug (1971)
Vietnam	16.8	Stroup and Hargrove (1969)

Note: Coefficients are not strictly comparable because of the different independent variables used in each study.

earnings functions tool have been futile in DC's [1] and the same argument applies for LDC's. Perhaps the most promising area of earnings functions applications is within the poorer strata of the population. That is, instead of splitting a sample into "upper and lower" (sic) segments, concentrate on the ,ay determinants and try to improve the lot of low-paid workers. To put it differently, I think a lot can be gained analytically by concentrating on the problem area of an income distribution (i.e. the lower tail) than by trying to analyse the whole distribution and its determinants in one computer run.

D. Inequalities before birth to adult life

This area of research refers to a summary of the three inequality components discussed thus far in a recursive way. The value of recursive models becomes evident when one thinks of the danger of concentrating only on inequalities after schooling, abstracting from earlier factors that led to such inequalities.

Path applications are abundant for the United States but scarce for other countries, DC's or LDC's. Perhaps the most famous (and equally controversial) application in the U.S. is the one by Jencks (1972) [2].

Other path analyses for DC's include:

- Sweden (Fägerlind 1975)
- United Kingdom (Psacharopoulos 1977 c)
- Australia (Heady and O'Laughlin 1978) and
- Netherlands (Dronkers and De Jong 1978)

Regarding developing countries I have come across the following path applications:

- Singapore (Liu 1975, and Fong and Woi (1975)
- Peru (Toledo 1975)
- Brazil (Velloso 1977)
- Thailand (Leonor 1976 a) and
- Turkey (Kasnakoğlu 1978)

In fact, I am not aware of path applications in countries other than those listed above, although I know that work is in progress on this front in Italy, Greece, Malaysia, Germany, France, Belgium and Mexico [3].

---

[1] See Cain (1976), Psacharopoulos (1978) and McNabb and Psacharopoulos (1978).

[2] For collected criticisms of this study see the February 1973 issue of the Harvard Educational Review and the October 1974 issue of the Comparative Education Review.

[3] Italy: Antonelli's Ph.D. research at the London School of Economics is based on a specially raised sample in North Italian cities.
Malaysia: Lee's Ph.D. research at the London School of Economics is also based on a special sample in Kuala Lumpur.
Greece: My research is based on a sample of 7,000 employees in urban areas.
Germany: Krug's work at the University of Trier is based on the German Micro Census.
France: Work by the "extended Dijon group" (Mingat, Lévy-Garboua and myself) will be based on the INSEE 1970 tapes.
Belgium: Work by Benon and Canieau, University of Mons will be based on a sample of post-secondary school graduates.
Mexico: Hallak's (IIEP) work will be based on a sample of firm employees in Coahuila.

It is very difficult to summarise what we have learned thus far from LDC application of path analyses. The problem is that the procedures followed by the different authors are very diverse, some stop short of examining earnings (e. g. Velloso 1977), some examine only first job earnings (e. g. Leonor 1976 a) and some are mostly concerned with the econometric properties of the underlying model. The feeling one gets from these applications, however, is that the results are not inconsistent with those in DC's.

What we do seem to know from DC applications is summarised on the arrows of Figure 3 [1/]

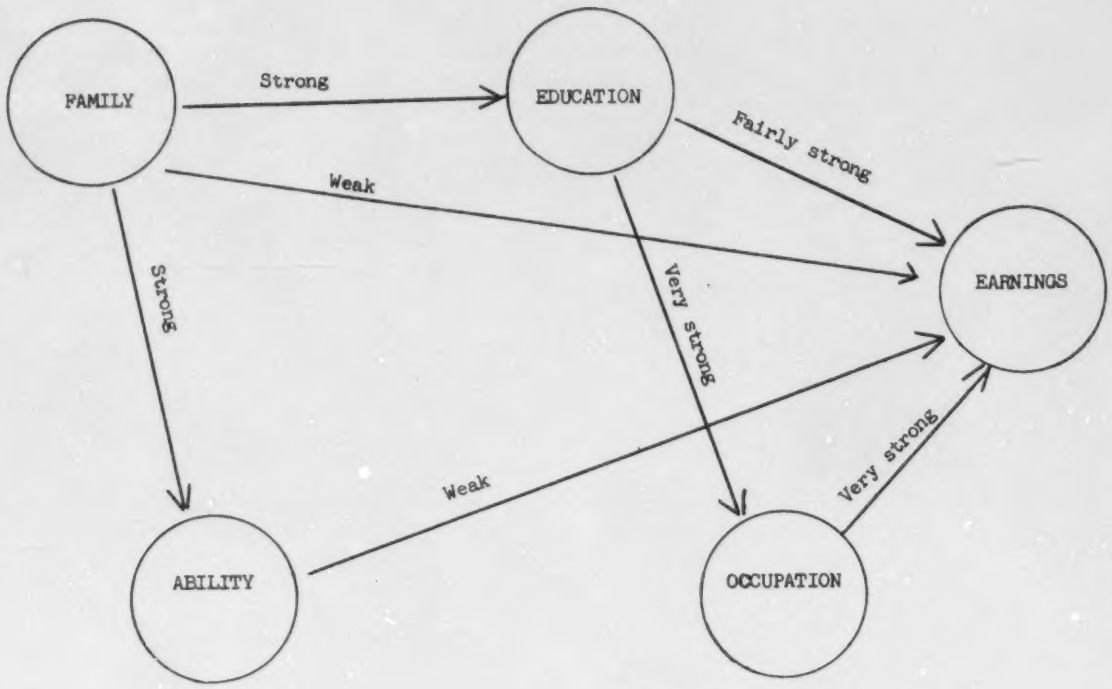


Figure 3. The relative strength of direct paths in DC's

Thus, family background influences strongly the level of education one attains and "ability", as measured by the usual IQ tests. It must be remembered that this ability proxy might have little to do with the unobserved genetic ability of the individual. For this reason it might not be surprising that the effect of measured ability on earnings is very weak. The two strongest effects in path analysis are usually from education to occupation and from occupation to earnings. The direct effect of education on earnings has been subject to controversy (for example Jencks found the corresponding path coefficient equal to .050 and dismissed this arrow as insignificant). However, a lot of other U. S. applications contradict this view. In addition, when one takes into account the indirect effect of education on earnings (via occupation) its total effect is substantial. In the U. K. work already cited the total effect of education is equal to .264.

Although path analyses provide the most intuitive display of results linking inequalities before birth to those observed in adult life they have their limitations. For example, interaction effects have no place in the neat temporal sequence (although they can be accounted for separately à la Fägerlind 1975). Also, more fancy algebraic specifications are out of the question and a host

[1/] For a numerical summary of the underlying coefficients in the U. S., U. K., Sweden and Netherlands, see Psacharopoulos and Tinbergen (1978).

of other variables do not fit the path models (such as age). In the remaining Chapters of this paper we shall discuss some additional inequalities related to education and work and coming under the headings of regional disparities, unemployment and basic needs.

VII. REGIONAL DISPARITIES

It is a commonplace fact that educational resources and outcomes are unequally distributed within any given country. What is not well documented, however, is (a) the magnitude of regional disparities in LDC's, (b) the extent to which one should worry about such disparities and (c) what policies, if any, should be enacted to change the disparities.

In spite of the fact that educational statistics in practically all countries of the world are collected on a regional basis, the literature is not rich on comparative regional studies of educational and other inequalities in LDC's. (But see Heyneman 1978). As an example, Figure 4 gives a graphic display of primary-school enrolments in Algeria where the near 100 per cent rate for the capital is contrasted to a 60 per cent for El Asnam and Tiaret. The figure also documents some rather sharp differences in participation between sexes. Similarly, Table 13 documents regional and over-time differences in the mean years of educational attainment in Italy. This table shows that even in more advanced countries regional inequalities not only exist, but they tend to persist over time.

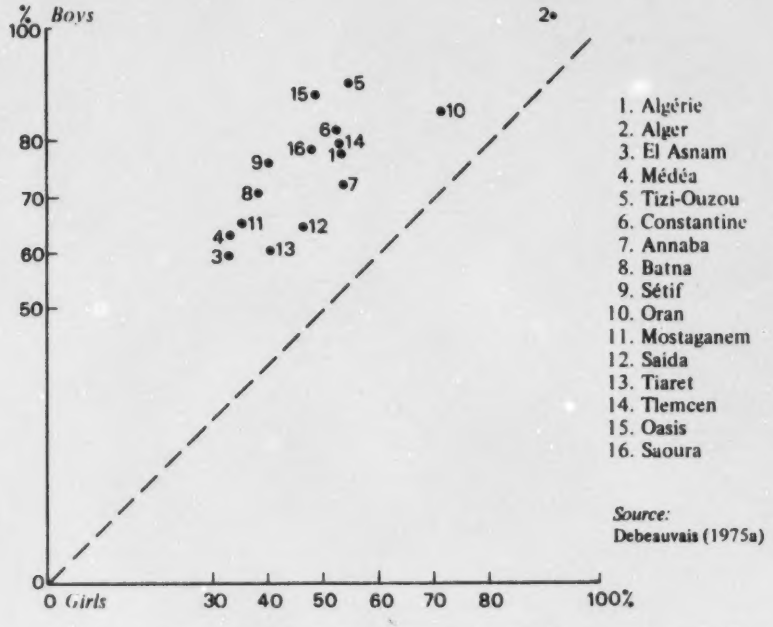


Figure 4. Primary school enrolment rates by sex and region, Algeria

Table 13. Mean years of educational attainment in Italy, 1951-1961

Region	1951	1961	1951-61 change (1951=00)
Northwest	5.2	5.5	105
Northeast	4.7	5.1	109
South	3.6	4.2	116
Italy	4.4	4.9	111

Source: Debeauvais (1975 b), p. 71

The second point I would like to raise regarding regional inequalities is that before raising one's hands in despair one might wish to ask an efficiency question. How appropriate would it be for the given educational budget to be allocated equally to all regions or for all children to receive the same level and quality of education? Clearly, the social demand for education in some regions might be low and in others high. Beyond the paternalistic, merit good provision of compulsory basic education, there is little one could do (or should do) to force children to stay on in school.

Actually, it might pay on overall economic efficiency grounds to withdraw the provision of a certain kind of education in some provinces so that certain families are encouraged to move out of a depressed area (say a coalmining district) and migrate to other expanding areas.

For example, consider the United States' anti-regional policy of paying farmers not to cultivate their land so that eventually their sons will move out of agriculture and speed up an unavoidable adjustment process.

The third point I would like to raise is that the "regional" inequality aspect overlaps to a great extent with the "personal" inequality aspect examined in the previous sections. For example, trying to explain personal inequalities for the country as a whole (i.e. differences in incomes) by means of personal characteristics and regional characteristics would amount to double-counting in view of the fact that the two kinds of characteristics correlate highly (e.g. people in depressed regions have low levels of schooling). Table 14 shows that personal characteristics have at least four times the power of regional characteristics in explaining earnings in Colombia and Brazil.

Table 14. The relative power of personal versus regional characteristics in explaining income distribution

Country	Year	Explained variance of log earnings by characteristics (percentage)	
		Personal	Regional
Colombia	1973	24	4
Brazil	1960	26	6
Brazil	1970	33	5

Source: Fields and Schultz (1977), Table 13.
Note: Personal characteristics include education and age

What I consider to be the challenge for research in this area is (a) a systematic analysis of the abundant regional data in LDC's with the view of (b) defining criteria of unacceptable levels of inequality (in regional participation or outcome) that should be subject to remedial policy.

VIII. EDUCATION AND UNEMPLOYMENT

It has been well established that educational inequalities lead to other kinds of inequalities later in life. The kind of inequality that has received most attention is the one referring to income (or occupational status in the work of sociologists). But what about those who are unemployed and are usually not included in the sample? [1/]

[1/] It should be remembered that even if a survey has raised data on those unemployed and hence with zero earnings, these people are usually removed from the statistical analysis that takes the logarithm of income as the dependent variable because of the Log (0) problem!

That the level of education relates to the incidence and duration of unemployment is another commonplace fact. The way it relates though is subject to debate. Regarding the incidence of unemployment, the first survey of its kind (Turnham and Jaeger 1971) suggested that the peak of the unemployment rate corresponds to secondary-education graduates. Subsequent evidence, however, tends to cloud this finding. (See Table 15).

Table 15. Unemployment rates by level of education (percentage)

Country	Educational level			
	Illiterates	Primary	Secondary	Higher
Colombia	11.5	15.3	14.9	13.2
Argentina	3.8	4.3	5.7	3.3
Venezuela	4.3	7.0	10.2	2.3
India	1.2	2.7	7.0	2.8
Ceylon	7.1	n.a.	11.8	2.3
Malaysia	10.4	19.5	30.9	15.5
Syria	4.3	n.a.	11.7	4.4
Kenya	21.0	21.0	13.0	17.0
Iran	10.0	8.1	13.0	2.6
Sudan	2	2.5	5.5	5
Kenya	21	19	17	12
Chile	12.1	4.6	1.3	0
Dominican Republic	22.4	17.9	9.2	n.a.
Nicaragua	23.8	14.0	12.2	n.a.

Source: Countries above the dividing line based on Turnham and Jaeger (1971). Countries below the line based on Mulat (1975) for the Sudan and Ramos (1973) for the rest.

Note: Comparability between countries and educational levels is limited because of different definitions and sample populations.

Regarding the length of unemployment, Table 16 shows that in at least two countries it tends to be related to the middle levels of schooling.

Table 16. Education and duration of unemployment

Sudan	Educational level	Mean duration in months
	Illiterates	10.4
	Primary graduates	11.6
	Secondary incomplete	12.3
	Secondary	9.8
	University	10.0

India		Percentage more than 9 months unemployed
	Illiterates	19
	Literate but below secondary	48
	Secondary	52
	Higher	n.a.

Source: Sudan from Mulat (1975), p.19

India from Turnham and Jaeger (1971), p. 52.

There exist at least two theoretical reasons why the level of education and unemployment might be related:

(a) The more education one receives, the higher the dispersion (variance) of wage offers one faces and thus the longer one is likely to search. (b) The higher the level of education one receives, the higher the opportunity cost (in terms of forgone earnings) while unemployed and thus the shorter the search is likely to be.

The interaction between (a) and (b) above is an empirical matter and cannot be assessed by just looking at cross-tabulations such as the ones presented in Tables 15 and 16. What one needs is employment incidence and employment duration functions that would explain the fact that someone is employed and the length of his (most often uncompleted) unemployment spell, standardising for other factors. The effect of education on unemployment under the ceteris paribus assumption can be examined in a function of the form $U = f$ (age, educational level, curriculum kind, other personal characteristics). Curriculum kind is another important variable in this respect as we have theoretical reasons to believe that those, say, secondary-school graduates who have followed general education are less willing to accept manual jobs and thus remain unemployed for a longer period of time. (For evidence in this respect see the ILO, 1971 report on Ceylon).

It is very unfortunate that the literature has thus far given extreme emphasis to earnings functions and has neglected employment functions [1].

[1] As an example of such functions applied to the United Kingdom I refer the reader to Nickell (1978)

IX. SELF-EMPLOYMENT AND BASIC NEEDS

Another bias of the LDC research literature is towards dependent employment versus the self-employed. Yet the latter constitute a sizeable part of the population in these countries receiving a meagre proportion of income. (See the Brazilian and Bolivian examples in Table 17).

What is the relationship between education and the economic performance of the self-employed? This is a question we can hardly answer even in the advanced countries context. To answer it in the LDC context would be even more difficult owing to the elusive character of the jobs of the self-employed. (See Sethuraman, 1976).

Table 17. Income distribution and self-employment

Brazil: Self-employed classified as "poor" 51%

Bolivia: Income status of selected population groups

Group	Percentage in the population	Percentage of income received
Self-employed (traditional)	5.5	1.9
Peasants ($\leq$ 5 hectares)	19.7	6.7
Self-employed (modern sector)	6.4	44.1
Unskilled workers	24.5	8.4

Source: Brazil from Fishlow (1972), p. 393

Bolivia from Morrisson (1978), Table 10.

Perhaps the only proposition we have documented in this area is that those of the self-employed who are farmers are doing better the more educated they are (See Chaudri 1974 and Leonor 1976 b).

Another promising area might be to help those out of work to become self-employed in the modern sector instead of joining the ranks of the unemployed. How to do this is a new research challenge.

Discussing those at the lower tail of the occupational, employment or income distributions brings us to the concept of basic needs. Table 18 gives the calorie and protein intake of the poorest population groups in some countries. Remembering that a man doing heavy work requires around 5,000 calories a day, one wonder what is the value of investigating whole distributions of earnings, (occupational status and the like) rather than concentrating at their lower end. This has been certainly the line pioneered by the ILO in recent years and quickly followed by other international organisations, such as Unesco and the World Bank. Among the possible policies discussed towards basic needs, the obvious question is what is the value of education? Figure 5 gives us a hint that calorie and protein intake correlate very highly with family income, especially at the lower end of the income distribution. Therefore, if education can raise the incomes of the poor it can certainly contribute towards the poor satisfying their most basic needs. So, the question reduces to:

Can education raise the incomes of the poor?

Several micro-studies (referred to above) have answered this question in the affirmative and there is no need to go once more through the trivial arguments of screening or dual labour markets. What I will do instead is present the results of some macro-checks on the potential equalising value of education.

Table 18. Calorie and protein intake of the poorest groups in selected countries

Country	Population group	Per capita intake	
		Calories	Protein (gm)
Brazil	Lowest 4% of inc. distr.	1315	36
Colombia	"very poor", rural	1535	30
Mexico	"very poor", rural	1788	45
Peru	Mountain areas	1754	47
Ceylon	Rural	1864	44
Iran	Peasants	1842	60
India	Lowest 20% of inc. distr.	1340	38
Madagascar	Lowest 55% of inc. distr.	2154	47
Tunisia	Lowest 8% of inc. distr.	1782	n.a.

Source: Turnham and Jaeger (1971), pp. 90-1.

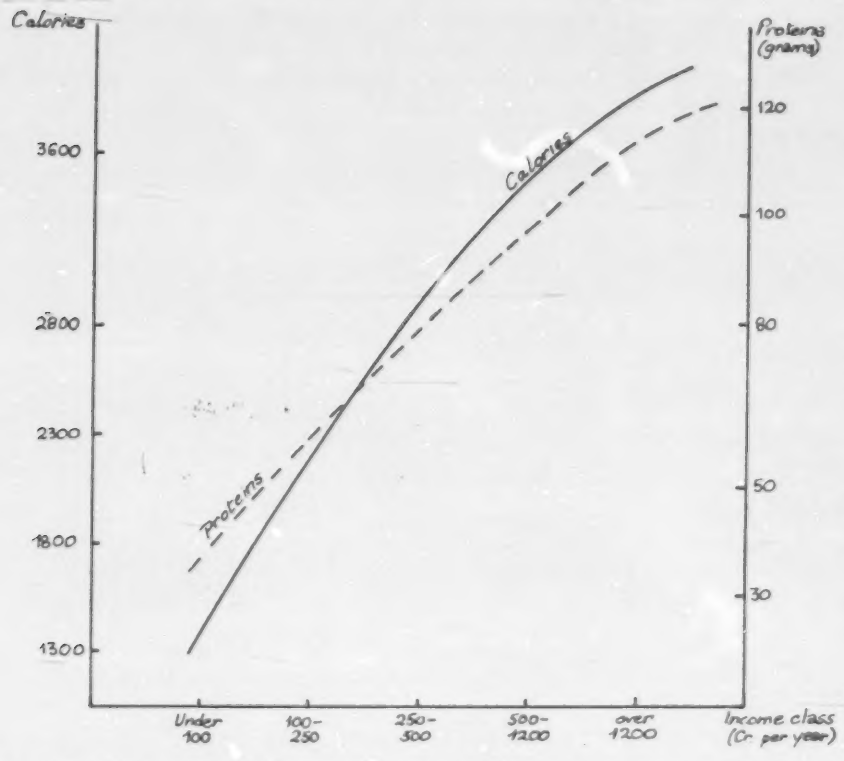


Figure 5. Per capita calorie and protein intake as a function of family income, Brazil. (Based on Turnham and Jaeger (1971), p. 90)

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X. SOME MACRO-CHECKS ON THE EQUALISING VALUE OF EDUCATION

Does "more education" lead to a more equal distribution of income? We will try to give some evidence in this respect in two steps, first, referring to education in general and second referring to particular levels of education. Table 19 gives a measure of income inequality (the Gini), a measure of educational inequality (the variance of enrolments) and per capita income in a number of countries.

Table 19. Income distribution, educational inequality and per capita income in selected countries

Country	Income inequality *GINI*	Educational inequality *EDINEQ*	Per capita income (in US $)
(1)	(2)	(3)	(4)
Argentina	.42	.84	782
Australia	.30	.75	1823
Barbados	.45	.72	368
Bolivia	.53	1.12	132
Brazil	.54	.87	207
Burma	.35	1.05	64
Ceylon	.44	1.13	140
Chile	.44	1.09	486
Colombia	.62	1.01	275
Costa Rica	.50	.97	360
Dahomey	.42	1.11	73
Denmark	.37	.65	2078
Ecuador	.38	1.00	202
El Salvador	.53	1.07	249
Fiji	.46	1.12	295
Finland	.46	.60	1568
France	.50	.56	1732
Gabon	.64	1.15	368
Germany	.45	.71	1667
Greece	.38	.65	591
India	.33	1.07	95
Iraq	.60	.93	285
Israel	.30	.84	1243
Italy	.40	.55	1011
Ivory Coast	.43	1.15	213
Japan	.39	.51	838
Jamaica	.56	1.19	465
Malaya	.36	.86	278
Mexico	.53	1.07	441
Morocco	.50	.99	180
Netherlands	.42	.54	1400
Nigeria	.51	1.22	74
Norway	.35	.58	1717
Pakistan	.37	.70	101
Panama	.48	.92	490
Philippines	.48	.92	240
Puerto Rico	.44	.61	1101
Senegal	.56	1.11	192
Sierra Leone	.56	1.07	142
South Africa	.58	1.05	521
South Korea	.26	.84	107
Sudan	.40	1.10	97
Tanzania	.51	1.31	61
Trinidad	.44	1.05	704
Tunisia	.53	1.15	187
United Kingdom	.38	.63	1590
United States	.34	.46	3233
Venezuela	.42	.88	904
Zambia	.48	1.25	207

Note: Educational inequality is based on the variance of enrolments between educational levels within each country.

Source: Psacharopoulos (1977d)

Table 20. Income inequality as a function of educational inequality and per capita income

Variable	(R.1)	(R.2)	(R.3)
Constant term	.281	.289	.482
Educational inequality (EDINEQ)	.186 (.049)	.180 (.075)	-
Per capita income (YP)	-	-.000003 (.000025)	-.00005 (.00002)
R^2	.23	.24	.14

Source: Psacharopoulos (1977 d)
Based on the data presented in Table 19. Dependent variable in all regressions is the Gini coefficient. Numbers in parenthesis are standard errors.

Regarding the particular level of education that contributes most to inequality reduction, it has been found that this is the lower level. For example, experiments with Mexican data gave the following results. (See Marin and Psacharopoulos 1976).

Experiment A. Give primary education to 10 per cent of those without.
change in var (log Y) = -4.7 per cent.

Experiment B. Give secondary education to 10 per cent of those with primary schooling
change in var (log Y) = 4.6 per cent.

Experiment C. Give higher education to 5 per cent of those with secondary education.
change in var (log Y) = 1.5 per cent.

The equalising value of the lower levels of education has been confirmed for DC's as well. (See Psacharopoulos 1978).

XI. A POST-SCRIPT ON RESEARCH PRIORITIES

In the preceding sections I went through a mélange of topics that relate to inequalities in education and employment in LDC's. Let me now try to pull the threads together and suggest some research axes that in my opinion should receive priority. Remembering that the ultimate concern here is how to increase social welfare via educational policy, I would like to start casting my suggestions in the economist's traditional "what-how-whom" way.

What education to provide? This question could be split into two parts. First what level of education to provide and second, what kind of education to provide. The first is a quantity of education question and we do have solid research results on it. Namely, it is the lower levels of education that lead to increased efficiency and equity. What we are not so sure about is what subject content to give to a given level of education. Beyond the classical challenge of technical education (Foster 1968) I have not seen many studies on how a given curriculum leads to employment, increased earnings or greater equality. This leads me to:

Suggesion No. 1: Investigate the relationship between given curricula types and the labour market performance of graduates.

How should education be provided? This is a technological question that links to educational production function work. In spite of the lack of a generalised theory of learning we have already obtained important hints on the rôle of the family towards a given educational outcome. However, we are not yet sure exactly what attributes of the family influence educational achievement so that compensatory action could be taken within schools for those from low social origins. Therefore, it looks appropriate to me to make:

Suggestion No. 2: Investigate the impact of specific family characteristics on the student's educational achievement.

For whom education should be provided? Again, this is an area where we have a lot of solid results, most of them suggesting that it is the poor who finance the education of the rich. (See Psacharopoulos 1977 e). The problem is how to make it politically palatable that certain groups of the population should pay for the education of their children. I believe that increased documentation of the above not-so-intuitive proposition would create a climate more conducive towards charging selective fees. This makes me put forward:

Suggestion No. 3: Continue documenting the extent to which universal free education is socially inequitable.

The self-employed. It might not be an exaggeration to say that 99 per cent of what we know on the relationship between education and social inequalities is based on samples of persons employed for wages or salaries. Given the fact that self-employment (especially when one includes agriculture) is more dominant in LDC's relative to DC's, I make:

Suggestion No. 4: Investigate the way specific levels and kinds of education relate to the economic performance of the self-employed.

The bottom tail. It has been pointed out at several places in the preceding sections that a more direct approach towards understanding inequalities in education and employment is to focus on the lower tail of the educational achievement, socio-economic group, income and employment distribution. Another way of looking at the same problem, is splitting the question into two parts. First, how to provide a minimum amount of education as a right (say towards the 3 R's and employment) and how to remove obstacles of access towards the higher levels of education and jobs. In view of the fact that the first part of this question is likely to affect a multiple of the population of part two, this makes me put forward:

Suggestion No. 5: Focus research towards the satisfaction of the basic needs end of the educational and income distributions.

Compensatory policy factors. Factors that affect educational or economic outcomes could be divided into completely exogenous (such as sex, genetic ability, fathers's occupation and the like) and those that could be manipulated by policy (such as the amount or kind of education provided). Given the fact that one cannot change exogenous factors, what we would like to know as policy makers is the relative strength of subject-to-manipulation factors in compensating for adverse exogenous factors. We do have some evidence on DC's in this respect (Papanicolaou and Psacharopoulos, 1978), but what about LDC's? Therefore I propose

Suggestion No. 6: Investigate the relative compensatory power of specific educational policies for adverse exogenous factors.

Policy means. Let me end by bringing back the first point I made in this paper, namely that all inequality indices are subjective and one must bring into the analysis an additional (value judgement) criterion for making a decision. I believe that our rôle as educational analysts should be limited to working out the particular efficiency, equity or employment implications of alternative policies and thus serving a policy-implications menu to the politicians. One way of doing this is via simulation experiments (à la Adelman and Robinson 1978, Psacharopoulos 1978, Marin and Psacharopoulos 1976, or Blaug, Dougherty and Psacharopoulos 1978). Therefore, my final proposition for a research axis in this area is:

Suggestion No. 7: Experiment with simulations of the effects of particular policies on the components of a social welfare function.

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Education and employment inequalities in Iran

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Iran has made an unprecedented effort to democratize primary education over the past fifteen years. Between 1970 and 1975 school attendance for children aged 6 to 11 rose from under 70 per cent to nearly 90 per cent. Meanwhile, efforts were made to combat illiteracy. As a result, between 1966 and 1975 the average annual increase in the number of people aged 6 and over learning to read rose to 8.5 per cent, while in the same period the average annual rate of increase in the number of illiterates was no greater than 1.8 per cent.

During the same period, special emphasis was placed on providing school places and literacy work for people living in the countryside. In 1966 some 85 per cent of peasants and 49 per cent of town-dwellers were rated illiterate; by 1975 these figures had fallen to 71 per cent and 37 per cent respectively.

This recent, praiseworthy, effort to improve school attendance and literacy has, on the whole, been more successful among women than men, owing to women's considerable retardation in the past. Evidence of this lies in the fact that the number of men able to read and write was multiplied by 1.9 per cent between 1966 and 1975, while the corresponding multiplier for women was 2.4 per cent. Even so, still to this day only 35.4 per cent of all literates are women, the lag being more pronounced in the villages than in the towns (35.1 per cent against 42.6 per cent in 1975).

Inequalities of opportunity of access to education vary greatly from region to region. Inequality between men and women is very sharp in a region such as Kurdistan, where four-and-a-half times more men can read than women, whereas the corresponding figure for the central province is only one-and-a-half. The lowest scoring provinces (with the highest ratio of illiterates to literates) are Koh-Guilouyé and Bower-Ahmad, with a ratio of only 1 to 5.5, whereas this proportion is 1 to 1.1 in the central province. The more urbanized the province, the greater are a person's chances of access to education. In the country as a whole, there is one literate person for every 1.4 illiterates, but this proportion differs greatly between town and country: 100/71 in the towns, and 100/260 in the countryside; in other words, the situation is 3.6 times better in the towns than in the countryside.

There is another way of depicting this regional disparity: by calculating the ratio of children attending primary school in each region to the total 6-14 years old age-group, i.e. the total number of school-age children, in each region. A recent study shows that the rate of primary-school attendance in the towns is 95 per cent, and only 61 per cent in the countryside. The gap to be spanned is still enormous, therefore, and above all much remains to be done to increase school attendance by girls in the countryside.

As for regional disparities, it should be borne in mind that only 40 per cent of all Iranian provinces have primary-school attendance figures equal to or superior to the national average.

It is worth noting that Primary school attendance rates (for children aged 6-11) are close to 90 per cent, whereas the corresponding figure falls to 46 per cent in the "cycle d'orientation" (intermediate stage) and to 26 per cent in secondary education. The higher one moves up the education system, the slimmer are the country child's chances of gaining access to education, as can be seen from Table 1.

Table 1. Students and pupils from the countryside as a percentage of school attendance in the different levels of the education system.

Year	Primary	Secondary	University
1966	46.4%	9.8%	3.6%
1976	52.8%[1/]	4.4%	-

[1/] The 52.8 per cent figure should not be taken to imply that access to education is the same for rural as for town children. It is true that 53 per cent of Iran's population lives on the land, but the age-structure in the countryside is by no means the same as that in the towns.

To this should be added the fact that the drop-out rate from primary schools is much higher for rural children than for town children; which proves that the quality of teaching provided for the former still leaves much to be desired.

It is our view that "social class" plays a much bigger rôle in the post-primary levels than at primary level. As we lack suitable general studies of the influence of social class on chances of access to education, we have taken as our evidence for this assertion the findings of a survey specifically designed to elicit the social background of secondary-school children in Tehran; this survey demonstrates clearly that "lower"-class children have a much lower chance of gaining access to secondary education.

Tehran, the capital, has the highest rate of school attendance in the country. Tehran represents 11-12 per cent of the total population of Iran, whereas 24 per cent of the children attending kindergarten, 13 per cent of those enrolled in primary schools, 21 per cent of those in general and technical secondary schools, and roughly 50 per cent of all students in higher education, live in Tehran. As the population of Tehran is notably richer than that of the country as a whole, it can readily be seen, here again, that post-primary education is more accessible to the children of better-off parents.

Table 2 gives further evidence of inequality of access to education depending on sex and region.

Table 2. Breakdown by sex and region of enrolments in the different levels of the education system, 1976/1977

Educational level		Boys	Girls	Total
Nursery schools	(urban)	93 919	81 550	175 469
	(rural)	20 516	15 884	36 400
Primary schools	(urban)	982 489	879 242	1 861 731
	(rural)	1 734 133	809 348	2 543 481
Intermediate	(urban)	647 454	430 095	1 077 549
	(rural)	228 062	63 299	291 361
General Secondary	(urban)	418 926	286 802	705 728
	(rural)	28 048	6 695	34 743

It would be appropriate now to record some of the measures taken by the Iranian government to reduce inequalities of access to education, since the Declaration of Principles of the White Revolution: one early measure was to institute free education at practically all levels; another was the passing of a law introducing compulsory primary education. Other measures include: the introduction of a protein-supplement feeding programme in schools, for children up to the age of 14-15; expansion of the well-known Army of Knowledge scheme aimed at developing rural schooling, involving the recruitment of young people from rural and tribal communities with basic education as future schoolteachers, giving them an accelerated training, and so on.

These inequalities of access to education between boys and girls, rural and townspeople, different social classes and different regions, all undoubtedly contribute heavily to inequalities on the job market, education being a factor of prime importance, especially where gaining employment in the public sector is concerned (this sector controls over 50 per cent of total investment in the country).

Take the case of inequality of access to education as between boys and girls. Some 38 per cent of all primary-school pupils are girls; girls also account for 38 per cent of general secondary-school enrolments, but for only 19-20 per cent of technical or vocational school enrolments. Twenty-nine per cent of students are girls. All these figures help to explain why girls and women account for only a relatively minimal proportion of the total labour force: only 13 per cent of women over 10 work, whereas the corresponding rate for men is around 77 per cent. Female labour accounts for only 13 per cent, roughly, of total Iranian labour.

Figures for the previous general census (1966) show that the higher the girl's educational level, the greater is her tendency, and her chances, of finding a job. According to the same census returns, fewer than 4 per cent of women having attended primary school were currently employed; the figure for women with a secondary education was 0.16 per cent, whereas 46 per cent of women who have been through higher education were employed. This demonstrates clearly that any initial handicap, i.e. in educational level, is clearly reflected subsequently in the job market. It is our view that rural children and youths experience the same handicap.

Obviously, there would be no point in claiming that school alone guarantees success in finding a job. Firstly, we may ask whether there is any exact correlation between the type, the level and the content of studies and the demands of the job market. Next, other factors also play a part, such as family and personal relations, which are taken into account when it comes to hiring an individual. Nevertheless, there can be no doubt that education is rapidly becoming increasingly important in a fast-expanding economy. This is why in recent years Iran has had to import foreign labour to man its increasingly diversified and "sophisticated" economy.

Relations between the different levels of education and the labour market differ. In general, there is more room in the labour market for people with primary or university education than for those with a secondary education. According to the 1966 general census, out of all unemployed people (seasonal or otherwise) 77 per cent were illiterate or almost so. Among unemployed people able to read, 73 per cent had had a primary education, 26 per cent a secondary education, and only 1 per cent a higher education. Comparing these figures with the percentages of people with a primary, secondary or higher education in the entire working population aged 10 and over (these percentages being 75, 20 and 4 per cent, respectively), we find that people with a secondary education are over-represented among the jobless, whereas people with a primary or higher education are under-represented in this respect.

The educational demands of the different sectors of the economy are obviously not the same. To demonstrate the significance of this, let us look at the case of women once again. In 1966, the percentage of women in the total population employed was around 13 per cent, as mentioned earlier. In the same year, fewer than 9 per cent of all government employees and officials were women. We know, moreover, that economic development leads to rapid expansion of the service sector, as evidenced by the fact that percentage of people employed in this sector rose from 24 to 28 per cent between 1965 and 1966 (today it stands at a little over 30 per cent), and that the civil service accounts for roughly 30 per cent of service-sector employees.

Discrimination against women in the civil service is partly attributable to their lack of education, since the civil service exercises a powerful attraction on the highly educated. A survey dating from 1966, covering more than a quarter of all government employees and officials, shows that 17 per cent of this category had attended post-secondary education, whereas the corresponding figure for the entire population was more like 1 per cent. We may therefore conclude that women's educational handicap is subsequently reflected in the labour market, as well as in a sector which, economists and sociologists predict, is more likely than any other to expand rapidly once economic take-off has been achieved.

Unfortunately, Iran lacks adequate studies of the impact of educational inequalities on the trajectories of the different social classes and groups. Our own surveys of the social background of ministers and members of the two legislative houses have shown that a foreign university degree is one essential condition facilitating access to top positions. This unquestionably means that the children of workers or peasants have less chance of gaining power.

Consequently, the democratization of education is an essential condition of achieving a politically democratic society.

Education and training for a transition to workplace democracy: theory and illustrations[1]

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I. INTRODUCTION

The advent of the industrial revolution and the ensuing development of mass-production technology have had profound effects on human character and the nature of work. The self-employed craftsman and farmer was replaced by the wage-labourer and the scientific management of Taylorism. The alienating nature of the workplace under Taylor's method of fragmenting a job into the simplest, repetitive tasks possible led to harmful social, political, and economic effects that persist today - among them severe health and safety problems, higher absenteeism, poor work motivation, a high rate of sabotage, and a passiveness in non-work activities. The result is that today both the developed capitalist and state socialist countries, as well as developing countries, are faced with mounting pressures to alter the nature of work (Levin, 1978). Demands for more democratic and humane approaches to management have taken form in a growing movement towards active worker participation in decision-making and, in the United States, quality of working life [2/]. The concept of participatory management has been the subject of discussion and limited trials since the 19th century. However, in the past 30 years participatory management, both as an ideology and a practical way of organizing production, has become a fact of life in both developed and developing countries. A recent international study on the organization of work conducted by the International Labour Office concluded that "the drive for worker participation in decisions within undertakings is a worldwide phenomenon which, as a basic proposition, is no longer contested." (ILO, 1975). A World Bank review of the quantitative evidence indicates that more humane working conditions and improved productivity are associated with more participatory forms of management (Wachtel, 1978).

Democratizing the workplace means that new forms of organization and decision-making designed to maximize worker participation and development must be initiated. These changes, in turn, will require parallel adaptations in the structure of educational and training systems to prepare workers and managers to meet the new demands that will be placed on them. This is necessary because the present structure of formal educational and training systems is geared towards imbuing in people those characteristics, values, and attitudes necessary for them to perform in the hierarchical, non-participatory organizations that characterize the workplace today.

This paper examines the implications for future patterns of education and training arising from the movement towards participatory management. The literature, however, is surprisingly deficient. Little information has been published on the training that takes place within institutions. The organizational development literature may come the closest to a systematic approach, but it fails to capture either the diversity or depth of existing experience.

[1/] Peter Hazlewood provided able assistance in preparing this paper.

[2/] The terms 'worker participation,' 'workplace democracy,' and 'participatory management' are used interchangeably.

In the following section issues and problems associated with the interaction between present models of education and training and the requirements of a transition to participatory management will be analyzed. In section III, an alternative model to aid in the transition is proposed. Section IV provides case studies about current attempts at using education and training to develop a more democratic and humane work environment, and thus alter the social relations of production (in the limited space we are not able to cover important experiences in the United States and Norway).

Before proceeding, it will be helpful to define the key concepts used in this paper - 'education,' 'training' ('on-the-job training'), and 'participatory management.' 'Education' can take several forms, all of which may or may not, contribute to learning, including:

- Formal Education or Schooling. This describes the learning that takes place in school, and trains students in developing countries mainly for urban, modern-sector jobs;
- Nonformal Education. This is organized learning outside the normal school curriculum, such as agricultural training programmes, evening adult literacy classes, radio and mass media campaigns, and vocational training programmes;
- Informal Education. This provides most of the learning essential to living and working. It is casual and takes place outside the schools and other organized programmes. It is learning through experience at home, in the community, and on the job (Simmons, March 1978).

'Training,' in contrast to the general nature of education, is production-skill-specific. Learning the skill of typing is one example of training. 'On-the-job training' is more specific in that it includes only those skills that can be learned while working. For example, typing is not a skill to be learned while 'on the job.' An example of on-the-job training would be learning the skills of carpentry as an apprentice.

'Participatory management' can be defined in several ways, depending on the objectives sought by those who organize production. We use an operational definition of increasing the ability of workers to participate in decisions that affect them both as workers and as citizens. In the paper we are concerned with people and institutions in a transition to an advanced level of participation - workplace democracy - in which management is responsible not just to the board of directors but to the entire work-force and often the outside community.

In light of these conceptual analyses, let us proceed to a critical examination of the present system of education and training in terms of its relevance to a democratized workplace.

II. ISSUES AND PROBLEMS WITH THE EXISTING MODEL

As stated earlier, a transition to participative management involving the introduction of innovative forms of organization and decision-making will place new demands on workers, including managers. This raises the question of whether present systems of education and training are capable of preparing people to meet these demands. In recent works there has appeared increasing evidence to the contrary (see Simmons et al, 1979; Akingba, 1978; Levin, 1978; Bowles and Gintis, 1976; and Bayard and Vanek, 1975). We take the position that a transition to organizational forms of participatory management will require significant reforms in our approach to education and training. These reforms must be of a structural, rather than merely technical, nature.

The necessity for fundamental structural change is due to the growing body of evidence that both formal and nonformal education are shaped by the political and economic institutions within which they operate. Harry Levin (1978) refers to this structural relationship as the 'correspondence principle.' Formal and nonformal education serve as parts of the overall system of socialization, whose purpose is to prepare individuals to function as "responsible adults" in our hierarchically organized society. A properly socialized adult workforce must be provided certain specific skills, values, attitudes, and behaviour patterns. Herbert Gintis (1971) indentifies four types of these personality characteristics; (1) proper level of subordination, (2) discipline, (3) matter-of-factness (as opposed to emotion) in social relations, and (4) motivation according to external reward structures. It is easy to see how all four traits are reflected in existing systems of formal education; through the hierarchically regulated school environment, through the student/teacher relationship, and through grades

and other methods of reward. In this way, schooling contributes to "the reproduction and expansion of the production process and its associated pattern of social relationships" (Levin, 1978).

Along the same line, Paulo Freiere points out that "the teacher speaks of reality as if it were stationary, static, compartmentalized, and perfectly predictable ... and the students are considered as 'containers' or receptacles to be filled by the teachers." (Freire terms this system of learning the "banking concept of education.") Under this system, the teacher is the depositor of knowledge and students are merely depositories. As the students passively absorb this knowledge their capacity for critical consciousness declines and they are transformed into adaptable, manageable beings. (Espinosa and Zimbalist, 1978).

There have been some attempts at "democratizing" the school environment. However, these reforms have been of a largely technical nature and have not led to any significant changes. In Norway, the relationship between schooling and work has been studied in the context of democratizing the shop-floor. Researchers concluded that: "As a place of work most schools seem to have more resemblance to the mechanistic, hierarchic and fragmented industrial organizations than we like to think of." (Blichfeldt, 1975 as cited in Walker, 1977). In most schools it was found that learning tasks were structured as production tasks. "They were also organized individually, as in mass production; less than 10 per cent of the activities observed in the classroom involved group work. The research workers considered that such 'closed' task structure is likely to encourage submissiveness, a lack of ability to raise problems and a disability to work out solutions to new problems that may turn up." (Ibid).

Clearly, such qualities are incompatible with the demands placed on people in a democratically organized workplace; and the labour force must be capable of meeting these demands if participative management is to succeed. Workers must develop cognitive, affective and interpersonal capacities that will enable them to actively participate in the operation of the firm. Managers, in turn, will have to develop a new conception of the firm compatible with participation from below. In view of the inappropriateness of the present system of education and training to meet these requirements, let us now turn to an alternative model.

III. A LIBERATING EDUCATION FOR PARTICIPATORY MANAGEMENT[1/]

> "A situation in which some men prevent others from engaging in the process of inquiry is one of violence. The means used are not important: to alienate men from their own decision-making is to change them into objects." (Paulo Freire, 1970).

A system of education is never neutral. Education functions in one of two ways: (1) as a socializing instrument that acts to maintain the status quo; or (2) as the "cultural practice of freedom." In the previous section, it was shown how present systems of education have assumed the former rôle, alienating men and women from their own decision-making and turning them into objects of the production process. This model we have rejected as antithetical to a transition to participative management. For participative management is, in essence, a liberating rather than dominating form of production; seeking to humanize the workplace. Its development and sustenance therefore requires a liberating form of learning. This can occur through both schooling and training. We present here a normative model of education that is both liberating and mobilizing (as opposed to dominating and socializing).

A mobilizing and liberating education provokes action against oppressive and dominating conditions by developing people's innate capacity to transform and shape their socio-economic environment. This is done in two ways: (1) by challenging the predominant educational and economic myths of society, and (2) by transforming people's awareness of reality. This process Paulo Freire terms "conscientizaçao" (conscientization or awareness), or in the jargon of social science, a "paradigm shift:"

[1/] The approach to education here outlined draws on the writings of Paulo Freire, Adam Curle (1973), and a working paper by Vanek and Bayard (1975).

> "Conscientization refers to the process by which man, not as a recipient but as a knowing subject, reaches a deeper awareness both of the socio-cultural reality on which his life is built and of his ability to transform that reality." (Freire, 1970 (2));

A liberating education must be linked to actual praxis, thus eliminating the existing dichotomy between school and work:

> "One cannot change consciousness outside of praxis. But it must be emphasized that the praxis by which consciousness is changed is not only action, but action and reflection. Thus, there is a unity between practice and theory in which both are constructed, shaped and reshaped in constant movement from practice to theory, then back to a new practice." (Freire, 1973, cited in Vanek and Bayard, 1975).

It is the convergence of action and reflection, informal and formal education, which leads to conscientization. Such a linkage among on-the-job training schools and the production process itself can be seen today in China, Cuba, Tanzania, and the co-operatives of Spanish Mondragon, to name some of the most outstanding examples.

A liberating education must be based on dialogue between equals - that is, it is based on the principle of equality.

> "Without dialogue there is no communication and without communication there can be no true education ... Authentic education is not carried on by 'A' for 'B' or by 'A' about 'B,' but rather by 'A' with 'B,' mediated by the world - a world which impresses and challenges both parties, giving rise to views or opinions about it." (Freire, 1970 (1)).

Through dialogue (which for Freire is education) the contradictions of society are exposed and people's awareness of reality transformed. This process and the integration of learning and work prepare one for a fully participatory life.

IV. ILLUSTRATIONS

Chile [1/]

During its brief reign between 1970 and 1973, the socialist Popular Unity government of Salvador Allende carried out two major economic reforms: the creation of a large socialized sector of the economy and the introduction of a system of worker participation within that sector. Though short-lived, the Chilean experience with worker participation is significant because of its widespread application throughout the economy and its grass-roots nature. By the time of the overthrow of Allende, the state owned or managed roughly 420 enterprises which comprised the new "social area". The social area, though representing a small fraction of the total number of enterprises, had become an important force in the Chilean economy. Manufacturing enterprises of the social area accounted for over 90 per cent of total industrial production and employed roughly 140,000 workers, or approximately 30 per cent of the industrial labour force.

The new system of participatory management for social-area firms, called the "normas basicas de participación," provided for direct worker representation at the various organizational levels of the firm. The administrative council, representing the highest level of decision-making within a firm, was composed of five worker representatives, five state representatives, and one administrator appointed by the state who presided over the council, each member having one vote. Below the administrative council was a worker's co-ordinating committee which facilitated communication between the former body and, at the base level, the production committees and section assemblies which corresponded to the different production sections in the plant. The production committees had no formal decision-making powers but did make policy recommendations which were generally accepted when feasible and consistent with overall policy. At the very base of the firm is the worker general assembly which elects worker representatives to the administrative council and oversees and controls the other groups.

[1/] This section is based on an empirical investigation of worker participation in Chile by Espinosa and Zimbalist (1978).

The introduction of training courses was widespread and viewed as essential to the success of the participation system. This was in contrast to the virtual non-existence of enterprise-sponsored worker education programmes before 1970. The training programmes were developed in co-operation between individual factories or industrial sectors and various training institutes. In addition, new institutes for worker training and education were created.

Though the exact nature of the training programmes was not available, they clearly were designed to increase the knowledge, skills, and consciousness of workers so as to promote their effective participation. In addition to courses relevant to the firm's production and administration, there were courses in music, theatre, political education, community literacy, first aid, history, economics and other subjects. Workers were also instructed on the nature of worker participation and specifically the functioning of the "normas basicas" system. The dynamic relationship between education and training and participation became clear as participation created a demand on the part of workers for more general education and training courses, and education and training in turn facilitated participation.

People's Republic of China

> "Whoever wants to know a thing has no way of doing so except by coming into contact with it, that is, by living (practising) in its environment ... If you want knowledge, you must take part in the practice of changing reality. If you want to know the taste of a pear, you must change the pear by eating it yourself ... If you want to know the theory and methods of revolution, you must take part in revolution. All genuine knowledge originates in direct experience." (Mao Tse-Tung, quoted in Seybolt, 1973).

The People's Republic of China (PRC) offers the most far-reaching example today of a liberating system of education and training designed to prepare people for a participatory rôle in society. As the system of education and training forms the basis of the socialist transformation of Chinese society, it is helpful to review the general objectives of this transformation and how they are to be achieved.

The central objective is the eventual creation of an egalitarian society (economically, politically, and socially) in which power is vested in the mass of the people rather than in a bureaucratic elite. Several guidelines were established to guide the process and build the self-confidence necessary among the masses:

(a) to develop an awareness of the existence of classes and class struggle in socialist society;

(b) emphasis at every level on the maximum possible degree of self-reliance;

(c) emphasis on the values of "serve the people," solidarity, and self-sacrifice;

(d) faith in the people's ability to undertake enormous tasks;

(e) organization of the people into small groups for political study and action;

(f) open criticism of people in authority and self-criticism; and

(g) broad participation of people in decisions that affect them at work and in the community.

Thus, the transformation of society was based on a mass mobilization of the people based on the principles of self-reliance and participation in decision-making and execution. This required changing the attitudes and behaviour of both the masses and the leadership towards socialist objectives and methods. It is within this framework that the system of education and training in China has developed.

The revolutionary reforms in education and training were a direct result of the Cultural Revolution and the still prevalent Confucian traditions which brought it about. Confucian education was both "the instrument for training a ruling elite, and for cultivating a submissive ethic in the ruled. (Lin, no date; quoted in Tannebaum and Simmons, 1977)." In response to the persistence of Confucian ideas, Mao closed all the schools in 1966 as one of the first steps in the Cultural Revolution.

The structure of the reformed system of education and training reflected the new goals of the leadership in that it was highly decentralized and participatory. According to Albert H. Yee;

> "... the operation of China's school system is surprisingly decentralized. Local school systems manage themselves with broad policy-making coming from Peking and other administrative levels. Textbooks are even locally written in many instances. School construction and development are also locally controlled. This educational policy is consistent with the PRC's general emphasis upon self-reliance and service and gives the people an obviously strong sense of participation in their schools (Yee, 1973)."

Mao stressed during the Cultural Revolution that the masses must educate and liberate themselves. Only through debate and study-action (theory and practice) could they raise their political consciousness. In order to unite theory and practice an "open-door approach" to schooling was adopted, aimed at breaking down the physical, social, and psychological barriers that stood between the schools and society. One of the most important linkages established was between the schools and productive labour. According to the Chinese Communist Party Central Committee;

> "The future direction of education is for schools to run factories and farms, and for factories and agricultural co-operatives to establish schools." (U. S. Consultate General, 1958).

High-school graduates do not go directly to the university but instead are assigned to factories or communes for a period of at least two years of service. Following their work experience they may apply to the university if they have the approval of their peers and supervisors. At the universities there are factories so that theory (book learning) can be practised on site. In many factories throughout China, there are "July 21" workers' colleges, another child of the Cultural Revolution, where workers can take regular courses.

Another manifestation of the educational reforms was a re-evaluation of the student/teacher relationship. The Chinese adopted a dialogical method of teaching by which everybody taking part in the educative process is at the same time a teacher and a student. This is based on the assumption that nobody has a monopoly of knowledge and understanding. This, of course, is in line with the policy of open criticism of people in authority and self-criticism.

> "In the past (before the Movement) we just followed the teachings of the teachers, whether or not they were bad or incorrect. Now we have criticized the teachers' absolute authority ... we realize that if we have shortcomings we should be happy to be criticized by teachers and when they have shortcomings, we should criticize them." (a quote from a Chinese schoolgirl in Ehrenreich, 1974).

Students are "not in competition with each other for grades or for recognition as individuals. Students and teachers work as equals in common to help everyone achieve ... The basic criterion for student effectiveness was successful solution of the problem by the group, with each person being given the opportunity to participate" (Yee, 1973).

Since 1966, the PRC has placed extraordinary emphasis on the transformation of its system of education and training as a means for transforming their society to one that is both egalitarian and participatory. As James Eiseman concludes:

> "Education in the People's Republic of China now means not the training of elites or the providing of basic vocational/technical skills but rather the changing patterns of thought, attitudes towards authority, and conceptions of politics and the political system. Instead of the educational system "producing cadres for national construction' the major goals of education now are 'to liberate subjects from the classroom', 'change world outlook', 'link factories and schools' and 'learn from the masses' (Eiseman, 1975)."

Cuba

In the twenty years since the revolution, the Cuban approach to education has attracted international attention. Their objective is ambitious: to make every student into a worker and every worker into a student. The educational system was seen as a primary tool for building a more human, democratic and productive society than existed before 1959.

After 1959, Cuban political and economic policy went through three stages: the first, from 1959 to 1963, included the nationalization of most production and distribution and the implementation of the Soviet model of industrialization, which de-emphasized sugar production; the second period saw an acceptance of agricultural production as a lead sector; and the third period - 1970 to the present - is one of increasingly decentralized and democratic decision-making. The new national objectives introduced by the revolution, including income distribution, greater economic growth, reduction of foreign dependence, and democratization, shaped the structure and process of the education system.

A major area of educational reform of interest here is the integration of traditional school activities with work experience. One objective was to inculcate the dignity of manual labour among students who were likely to go into white-collar jobs. The first example was the literacy campaign, when students and adults went to the countryside to teach. In 1966, secondary schools went to the countryside so that students could work for six to seven weeks in the fields. In 1971, the government decided to locate the seventh to tenth grades of all urban secondary schools in the countryside. In 1976, this was limited to grades seven to nine. Students worked three hours in the field and three in class, plus two hours of evening study. In the elite technical secondary schools, which are five-day boarding schools for grades seven to twelve, students work part-time in factories located on the campus.

The Cubans have achieved in integrating work and school what most developing countries would like to do. By requiring that all students undertake the manual-work experience, they avoid the problem of the creation of the dual education system, the one side training students for manual labour which is usually terminal and the other side without manual labour and leading on to the university. In addition, habits of teamwork and co-operation are developed in the programmes.

Another important educational reform is the relationship between education administration and popular effort. After a thorough study of the relationship between educational planning, administration and the economic needs of the country, the leadership decided it was important to decentralize education administration and management decisions. Whereas in the past the Ministry of Education did everything, now a substantial number of decisions are made at the grass roots.

In conclusion, these and other reforms in Cuban education and training have created a system which increasingly serves the needs of the entire population, especially the poor who were mainly excluded before 1959. Learning from manual labour has become equally important as learning from books for all students. Personal traits such as co-operation and service to others are replacing competition and individualism. Decentralization and democratization, started in the early 1970s to deal with bureaucratic inefficiency, will have further impact on the way education meets human needs in the future.

Tanzania

Tanzania's development strategy is based on self-reliance through the formation of socialist, "ujamaa" villages that serve as agricultural co-operatives and centres for basic social and economic services. The villages are expected to provide their own labour for the construction of social service facilities. Education and training play a key role in supporting these goals of community development and self-sufficiency in production. President Nyerere in an official address to Parliament during the inauguration of the first Five Year Development Plan (1964-1969) stressed the nation's priority on adult education as follows:

> "First we must educate adults. Our children will not have an impact on our development for five, ten or even twenty years. The attitudes of the adults, on the other hand, have an impact now."

Tanzania has pursued an active national campaign to eradicate illiteracy. However, a much broader approach to adult education that goes beyond adult literacy classes has been pursued. To again quote Nyerere:

> "Adult education is learning about anything at all which can help us to understand the environment we live in and the manner in which we can change and use this environment in order to improve ourselves."

Classroom learning has been combined with a comprehensive out-of-school programme of human resource development. The following three examples are illustrative.

The Institute of Adult Education (SAE), in an attempt to mobilize and develop human resources on a mass scale, has initiated a variety of nonformal education programmes designed to develop the knowledge and skills necessary for village-level development. The Institute has considerable experience in motivating villagers to participate in needs assessment, planning, design and implementation of their own development projects. An example is the Chiwanda village development project where, with the aid of an Institute field staff member, the people of Chiwanda have designed and implemented a poultry project and diversified farming. With the exception of some private farming, all activities are operated communally.

In the village of Bwakira Chini the Community Development Trust Fund (CDTF) provided help in addressing a pressing problem with storage of grain [1]. CDTF's approach was based on the belief that villagers themselves can go a long way towards solving their own development problems using their own skills and resources. A project team of five people spent eight weeks in the village during the harvest season developing a "village dialogue" on the problems and possible solutions to grain storage problems. More than twenty formal meetings with the external team and an ad hoc Storage Committee appointed by the Village Council took place. Through dialogue the nature and causes of storage problems were identified and a range of solutions proposed. The project proved to be very successful.

The village dialogue approach has been used for several national adult education campaigns, such as "The Choice Is Yours" (1970), "Man Is Health" (1973), and "Food Is Life" (1975).

The third example involves "community education centres" (CEC's) in Tanzania. The CEC programme is designed to serve the education needs of the whole rural community for both basic education and production-oriented training. The centres are based on popular consultation and the principle of self-reliance. Since each centre aims to integrate all public services previously offered separately and to be the heart of village agricultural and industrial development as well as a school, the link between education and production - and between theory and practice - is basic to the concept from the start.

Spain - The Mondragon Co-operative Complex [2]

The co-operative complex of Mondragon in the Basque country of Northern Spain is a compelling example of the significance of education and training for human development. The complex is made up of fifty-six industrial production enterprises, four agricultural, twelve service, and five housing co-operatives, and a credit co-operative. The complex employs roughly 100 per cent of the regional labour force and produces about 18 per cent of the region's industrial output. As of 1975 there were 13,000 members. With the development of the complex, Mondragon has become the most dynamic industrial sector of the area in a space of twenty years.

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[1] Based on Community Development Trust Fund of Tanzania, "Appropriate Technology for Grain Storage in Tanzanian Villages: Report of a Pilot Project, January 1977" (New Haven: Economic Development Bureau, 1977).

[2] Based largely on an unpublished article entitled "The Development of Industrial Democracy In Mondragon," by Ana Gutierrez-Johnson.

Mondragon has its origin in a community-organized school that provided vocational training to a small group of young people. Lacking government support, the school was continually beset with financial problems. In order to raise money to keep the school operating, the students themselves managed fund-raising activities. From this experience, and in conjunction with their studies, the students became acquainted with the problems and techniques of management and financing, as well as developing a spirit of co-operation both within the school and with the community. It was a group of graduates from the school who, combining their technical know-how and education with the humanistic co-operative spirit of the school, inaugurated the first self-managed firms in the region (with the guidance of the dynamic Jose Maria Arizmendi).

The first school is now a fully accredited polytechnical school. It is part of a more extensive educational complex sponsored by both the League for Education and Culture (which links the education complex to the community and firms of the area) and the Caja Laboral (which includes a students' residence, a co-operative school-factory, and a research centre. The educational complex thus combines education with vocational training in a co-operative environment to develop a "consciousness" conducive to workplace democracy.

Sweden

Of the industrialized countries Sweden has perhaps gone furthest down the road towards a state of workplace democracy. Though Sweden is still far from achieving genuine worker participation, the legislation so far enacted is both innovative and far-reaching and has significant consequences for education and training. The drive towards workplace democracy in Sweden has been largely determined by the strong labour union movement and has been based primarily on legislation to establish rights for joint decision-making to protect worker interests. We will now take a closer look at the effects of Sweden's most recent and most participatory piece of legislation - the 1977 Work Environment Act.

The Work Environment Act adopts a much broader conception of the "work environment" than has traditionally been the case. This broader view goes beyond the physical conditions in which work takes place to include psycho-social factors. Under the Act and the legislation leading up to it, workers are to play a key role along with management in shaping their work environment as broadly conceived above. The Act stipulates that efforts must be made to arrange work in such a way as to enable workers to influence their own work situation. For example, it is required that worker safety representatives and work supervisors be properly trained. Since the adoption of the 1973 Amendments to the Worker's Protection Act approximately 150,000 safety representatives and work supervisors have participated in a thirty-hour basic training course, primarily in a special form of study known as "study circles." These study circles take place at the plant level during the workday.

The total need for training covers many more areas and activities. It remains to be seen in the coming decade what the response will be to this enormous challenge in education and training presented by the Work Environment Act. However, the direction, if not the outcome, is clear - workers are to play a far greater rôle in determining the conditions under which they toil.

V. CONCLUDING REMARKS

Though still in its infancy, the movement towards a transition to workplace democracy is gaining momentum throughout the world. The new approaches to management and organization of the production process emanating from this movement will place new and ever more demanding requirements on workers and managers. The evidence suggests that present systems of education and training are incapable of preparing men and women to meet these new demands. We have discussed a more appropriate model which is consistent with participatory management.

While several examples of efforts to develop a system of education and training designed to lead to a more democratic and humane work environment have been given, they are superficial. There has been an explosion of activity for the past ten years in participatory management, especially in Europe and North America. However, the literature has not kept up with the pace of this activity. This is a fertile area for future research.

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Sex differences in educational opportunity and employment in six countries

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The purpose of this paper is to explore the relationship between sex differences in educational opportunities and sex differences in patterns of labour force participation and employment in the modern sector in six countries: Egypt, Ghana, Kenya, Mexico, Pakistan and the Philippines. Many third-world countries are characterized by low rates of female labour force participation in the modern sector of the economy and by patterns of profound occupational segregation that cluster women in a limited number of occupational groups. Women's under-representation in the modern sector and exclusion from many of the occupations and jobs considered to be appropriate for females in industrialized societies occur both where females traditionally assumed significant economic rôles and where females' economic contribution was more limited. Studies conducted by the ILO also have shown that, in marked contrast with the situation for women in developed economic systems, female labour force participation rates in the less-developed regions have been declining in all age-groups. Moreover, long-range projections made by the ILO indicate that these trends are likely to continue through the rest of this century: by the year 2000 females in the more-developed regions are likely to increase their overall activity rates to about 35 per cent, whereas in the less-developed economic systems female labour force participation is expected to decrease to about 24 per cent (ILO, 1974: 4-7).

Sex disparities in educational opportunities also tend to be greater in less-developed countries than in industrialized nations. The magnitude of historical and contemporary sex inequalities in educational opportunity in low-income countries becomes clearer from an examination of statistics. In 1970 well under half of the total female population in the developing world was literate (approximately 40 per cent), in contrast with males, of whom approximately 70 per cent were literate (Unesco, 1973:43). Statistics on school enrolments by major regions for 1971 indicate that in that year females had attained near parity in developed countries, where they accounted for 49 per cent of primary, 49 per cent of secondary, and 41 per cent of tertiary registrations. Although women still confronted many problems in these educational systems, they were not disadvantaged to the same extent as female students in developing countries, whose relative share of enrolments at these three stages, after a decade of major educational expansion, stood at 41, 35, and 29 per cent respectively. In sub-Saharan Africa women constituted 41, 34, and 25 per cent of enrolments at the primary, secondary, and tertiary levels; in Latin America female enrolments were 49, 48, and 37 per cent of the totals at the three stages; and in Asia female enrolments were 39 per cent of primary, 35 per cent of secondary, and 29 per cent of tertiary registrations (Unesco, 1974:108-109).

It is the thesis of this paper that sex inequalities in educational opportunity have had significant repercussions for women's economic rôles in developing societies. Various studies have shown that occupational placement and mobility in most societies increasingly depend on the completion of specified levels of formal education (La Belle and Vernine, 1975; Boudon, 1974; Blau and Duncan, 1967). This is particularly the case in most non-industrialized systems, where stratification in the modern sector tends to flow from educational attainment rather than to reflect traditional status criteria. The extent to which this concern with diplomas, degrees, and certificates governs both the educational process and occupational structure has led one analyst to diagnose modern society as suffering from "the diploma disease" (Dore, 1976). If individual and group advancement are predicated on access to certain levels and kinds of formal education, the denial of this training has long-term consequences for the rôles and positions in society to which the educationally disadvantaged can aspire, and in five out of the six countries considered in this paper women constitute an educationally disadvantaged group.

This paper will make use of data collected by the author for a longer study of sex differences in educational opportunities and outcomes. The six countries that are included in the study differ widely in their traditional cultural values, levels of economic development, patterns of social stratification, educational systems, and geographic location, but they are not intended to represent systematically the universe of developing societies. It should be noted that the nature of the existing data imposes many constraints and therefore the paper can only offer tentative conclusions. The data utilized are of varying quality, some more reliable than others, and often very fragmentary. Although country studies conducted by national statistical agencies detail educational attainment and the type and extent of economic activity of different sectors of the population, it is often difficult to locate data with both variables in the same survey or census in order to ascertain the relationships between them. Another set of problems, particularly salient in computing variations in education-specific rates of labour force participation, derive from inadequacies in conceptualization and in data collection: the definition of work or labour force participation employed and the instructions to enumerators can be critical in determining resultant rates of female labour force participation. Narrow definitions that associate labour force participation with wage employment usually result in the gross underestimation of rural women's economic rôles, far more so than rural men's because enumerators tend to apply criteria more loosely to men since their expectation is that men work. Such an underevaluation of the work of rural females, most of whom have low levels of educational attainment, tends reciprocally to exaggerate the effect of increments of schooling on facilitating women's labour force participation.

I. SEX DIFFERENCES IN EDUCATIONAL OPPORTUNITIES

To provide some indication of the range and magnitude of sex differences in educational opportunities in the six countries three sets of statistics will be employed. The first, on the distribution of adult literacy in the society, is primarily an index of past educational opportunities. The second, a current estimation of female and male enrolment ratios, details the percentage of the eligible age-cohort by sex that is registered in school, and the third, on female representation, outlines the balance between the sexes at various stages of the educational system. An effort was made in compiling these tables to secure comparable statistics, but it is easier to assure comparability in the format of presentation than in the methods of national data collection and analysis. This is particularly the case with regard to the national censuses and literacy surveys from which the data in Table 1 originate, which probably varied in their definition of literacy (whether both reading and writing were utilized as indicators) and the stringency with which the criteria were applied (for example, whether reading and writing ability were actually tested).

The data in Table 1 indicate that the extent of female illiteracy ranges from a low of 19 per cent in the Philippines to a high of 88 per cent for Egypt, although the early date of the Egyptian census - 1960 - suggests that Pakistan currently has the highest level of female illiteracy. Male illiteracy is consistently lower in all six of the countries, varying from 16 per cent in the Philippines to 62 per cent in Pakistan. The greatest sex differences occur in Pakistan and Egypt, where female illiteracy is also at the highest recorded levels, and conversely the smallest sex differences are in the Philippines and Mexico, the two countries with the lowest levels of female illiteracy.

These data attest to the near universal trend for males to have earlier access to formal education. Many analysts stress cultural factors in explaining this phenomenon, such as parental preferences for male children, traditional systems of descent and inheritance through the male lineage, and obligations for male children to support their parents in times of need, all of which have contributed to the inclination of parents to invest in the education of sons ahead of daughters. This author's research also points to the historical origins of modern systems of education and their structures as depressors of female educational opportunity. Typically in the third-world countries formal education developed within the context of a colonial system and therefore reflected the outlook of the colonial administrators, the needs of the colonial administration, and the norms prevailing in the metropolitan countries rather than those of the people in the region. Most of the colonial administrators and missionaries involved with the establishment of schools subscribed to the conservative, Victorian sex role norms current in Europe in the nineteenth and early twentieth centuries, which presumed that females were dependent, less intellectual, and less in need of schooling than males. The implicitly vocational intent of much of the early formal education in many of the colonies, with the exception of the Philippines, which was to produce clerks and other functionaries for the colonial system, when juxtaposed with sex-roles norms that dictated that only

Table 1. Percentage of adult illiteracy

Country	Year	Age Group	Percentage		
			Females	Males	Difference
Mexico	1970	15 and over	30	22	+8
Ghana[1]	1970	15 and over	77	54	+23
Kenya[1]	1969	15 and over	77	55	+22
Egypt	1970	15 and over	88	60	+28
Pakistan	1972	10 and over	87	62	+25
Philippines	1970	15 and over	19	16	+3

[1] The Ghana and Kenya data are based on the proportion of the adult population reporting never to have attended school.

Source: For Mexico, Egypt, and the Philippines - UNESCO, 1977: pp.40,44,46,53; for Ghana - Census Office, 1972, pp.XXVI-II; for Kenya - Central Bureau of Statistics, 1977; for Pakistan - Census and Registration Office, 1977: Table 3.

males could fill these positions, resulted in male-oriented systems of education. Similarly the rôle of missionaries, who promoted schooling as an instrument of proselytization, also reinforced this male bias because the missionaries implicitly assumed that only males would have the authority to convert a family to Christianity. The male orientation in the early educational systems characterized societies with relatively few traditional barriers circumscribing female participation, such as Ghana, as well as others with restrictive cultural traditions, such as Pakistan and Egypt. However, the very different rôle of education in the American colonial system in the Philippines, which was designed to provide the basis for instilling citizenship norms to the entire school-aged population, both male and female, did not give rise to as pronounced an imbalance in enrolments.

The major expansion of the educational systems in most third-world countries during the past two decades has enabled increasing numbers of children, both male and female, to attend school and has significantly reduced sex disparities in primary-school attendance. Nevertheless males retain a considerable edge in representation at the secondary and tertiary levels in most low-income countries, and it seems unlikely that females will attain parity at these stages in the foreseeable future. The continued existence of sex inequalities in educational opportunity in five of the six countries is apparent from an examination of the data in Tables 2 and 3. The Philippines constitutes an exception to the typical patterns of declining female representation at each succeeding stage of the educational system and comprises the only educational system known to this author where females dominate higher education, particularly among candidates for master and doctoral degrees. At the opposite end of the educational spectrum, female prospects for schooling are the most depressed at all levels in Pakistan, where virtually all schooling is sex-segregated and where males have a significant advantage in the distribution of schools and places. The data in Tables 2 and 3 do not show consistent relationships in sex differences in the enrolment ratios at the first, second, and third levels of each educational system or in the balance in male and female representation in a particular country at the three stages.

In addition to sex differences in the availability of schooling and in enrolment patterns, there are other types of sex inequalities in educational opportunity that have implications for economic rôles. Many educational systems are characterized by pervasive sex-linked streaming, with the result that girls are not offered the same curriculum, standards, and programme options as boys. The nature of this streaming rarely derives from traditional sex-role norms or the traditional division of labour between the sexes, but instead reflects trends and practices. Pre-vocational and

Table 2. Estimated enrolment ratios

	Percentage of Eligible Cohort					
	First Level		Second Level		Third Level	
	Female	Male	Female	Male	Female	Male
Mexico (1974)	102(1)	114(1)	26	36	4.0	13.8
Ghana (1974)	53	68	28(2)	42(2)	0.4	1.7
Kenya (1974)	98(1)	116(1)	8	16	0.3(3)	0.8(3)
Egypt (1970)	44	69	15	31	4.3	11.5
Pakistan (1974)	30	70	7	33	2.9(4)	7.9(4)
Philippines (1974)	106(1)	109(1)	56	54	21.7	17.4

1. Includes over-aged children. A more accurate estimate for Kenya (1976) would be 82 per cent of females and 92 per cent of males of the six to 12 age-group. A more accurate estimate for Mexico (1970) would be 63 per cent of females and 65 per cent of males.
2. This figure includes students in middle school, which is more equivalent to upper-primary than to secondary school. In 1970 six per cent of females and 12 per cent of males in the 15 to 19 age-group were in school.
3. This estimate excludes primary-teacher training colleges.
4. 1972 rather than 1974.

Source: For all countries, UNESCO, 1977: 147, 149, 150, 164, 177; and for Kenya, Central Bureau of Statistics, 1977:6; and for Pakistan, unpublished data from the 1972 census and third level enrollment figures from Bureau of Educational Planning and Management and Central Bureau of Education, n.d.

Table 3. Female representation in the educational system

	Primary	Upper Primary	Secondary	Tertiary
Mexico (1970)	51	-	38	20
Ghana (1973)	44	41	28	14
Kenya (1976)	46	-	37	18
Egypt (1974)	38	-	34	30
Pakistan (1973)	27	19	18	28(1)
Philippines (1971)	51	-	53	55

(1) 1974

Source: for Mexico - Unesco, 1974: 148, 170, 171, 277; for Ghana - Ghana Teaching Service, 1975; for Kenya - Central Bureau of Statistics, 1977B; for Egypt - Unesco, 1977: 210, 280, 392; for Pakistan - Bureau of Educational Planning and Management and Central Bureau of Education, n.d.: Table 2; for the Philippines - Philippine Commission on the Status of Women, 1975: 4.

vocational programmes usually track females into homemaking or domestic science courses, while males are taught skills which may lead to remunerative employment. When females are offered career training courses, as in Mexico, they are usually encouraged to choose terminal vocational programmes that prepare them for a limited range of sex-stereotyped jobs. The typical over-representation of females in humanities and arts at the secondary and tertiary educational levels and their concommitant under-representation in sciences, engineering, and related fields often reflect the distribution of science facilities and teachers and/or the admissions policies of the relevant institutions. Curricula and textbooks also often have a decidedly male orientation. The range in the manner in which sex differences are treated in the curricula of the six countries is from benign neglect to active reinforcement of traditional restrictive sex-role patterns. In several of the countries women recede into invisibility and books describe a society whose history and contemporary operation, particularly in the modern sector, depend exclusively on males. Thus the cumulative impact of socialization through the schools may be to depress female aspirations and to discourage their participation in the modern sector.

II. LABOUR FORCE PARTICIPATION

Labour force participation refers to the proportion of an eligible group, usually of working age, actually in the labour force. As indicated in Taole 4, reported female rates vary more widely than reported male rates. A major factor influencing the calculation of male labour-force participation rates is whether the total population, including dependent children and retired, older citizens, is utilized as for Mexico, Egypt, and Pakistan, or whether the population base is more selective, as in the case of the Philippines and Ghana, since the latter method tends to raise male activity rates. For females, however, the nature of the age-base matters less than the definition of work or labour force participation. National differences in reported female activity rates often reflect the manner in which the data are collected. Rural women in modernizing societies typically undertake some types of agricultural work. Societies differ both in the nature and extent of these activities of rural females and in the willingness to recognize this labour as an economic contribution. This latter factor often significantly influences reported aggregate female activity rates.

Table 4. Reported rates of labour force participation

Country	Year	Age-Group	Percentage	
			Male Rate	Female Rate
Mexico	1970	Total pop.	43	10
Ghana	1970	15+	77	66
Egypt	1966	Total pop.	51	4
Pakistan	1972	Total pop.	52	5
Philippines	1973	10+	68	31

Source: for Mexico, Egypt, and Pakistan - ILO, 1974: 10,21,30; for Ghana - Census Office, 1972:XXIV; for Philippines - National Census and Statistics Office, 1975:692.

Surveys and censuses in the six countries have conceptualized labour-force participation very differently. Of the six, the Ghanaian Census Office has employed the broadest definition, including part-time workers as part of the labour force irrespective of whether they were paid for their services or worked in family enterprises, and consequently Ghana has reported high rates of female labour-force participation. The Kenya Central Bureau of Statistics has not been concerned with providing systematic national data on labour-force participation, but in its rural sample survey programme the approach of asking all adult members of the sample households whether they work on the family holding has yielded high activity rates with little sex disparity. Labour force surveys in the Philippines conducted by the National Census and Statistics Office on a national sample of households also enumerate as employed those persons who work for pay or profit or without pay in the farm or business enterprise operated by a member of the same household. However, the considerably lower ratio of the female working-age population classified as in the labour force, as contrasted with male rates,

suggests that either respondents or enumerators consider some of the rural women's economic activity as household work and consequently did not include such women as being in the labour force.

At the other end of the spectrum, all of Pakistan's, Egypt's, and to a less extent, Mexico's censuses and labour force surveys have grossly under-estimated women's economic contribution by employing restrictive definitions that tend to equate labour-force participation with wage employment. Moreover, male enumerators usually have collected data on women's economic activities solely by interviewing male members of the household, and this has introduced a further bias in the direction of under-reporting women's economic rôles. Although it is likely that the scope of women's economic activities is more limited in these three countries than in societies such as Ghana, Kenya, or the Philippines, which do not have as severe cultural prohibitions against male-female interaction, the very low officially reported rates of female labour-force participation may have more to do with the way the data were collected than with the actual restrictions on rural women's economic contribution. A further indication of this methodological distortion comes from comparing the results of the various government surveys of labour-force participation in Pakistan in this century, which have reported rates of female labour-force participation ranging from 2.1 to 8.8 per cent (Farooq, 1970: 18), with the 1968-1969 Pakistan National Impact Survey conducted by an international consortium on fertility patterns and contraceptive usage, which utilized somewhat looser criteria to define female labour-force participation and yielded a higher rate of 19 per cent (Shah, 1975: 6-8). Variations in the definition of labour-force participation have less effect on male rates for two reasons: enumerators tend to be less exacting or consistent in applying restrictive criteria to males, and more males than females have opportunities for paid labour.

Although data on the non-agricultural sector often contains some biases, it is freer of the systematic sex distortions characteristic of the rural data in several of the countries. As mentioned previously, recorded rates of female participation in the modern sector tend to be lower than overall female activity rates, particularly in countries where women's contribution to agriculture is measured relatively accurately, but also in some others, such as Pakistan. Therefore as a first step in measuring linkages between educational opportunity and labour-force participation aggregate levels of female educational attainment, as measured by the female proportion of the population aged 15 and over (or in the case of Egypt, 10 and over) with post-primary schooling, were compared with female participation in the non-agricultural sector (or in the case of Kenya, the formal sector, which includes employment in large-scale agricultural enterprises). Unfortunately it was not always possible to obtain both sets of figures for the same year for Egypt, Kenya, and the Philippines, which introduces some margin of error. To assess the congruence between the rankings on the two variables, the Spearman rank-order statistic was computed

$$r_s = \frac{1 - 6\ d^2}{N(N^2 - 1)}$$

Where d = The sum of the difference in rankings
N = Number of ranked entities

The data in Table 5, which yielded a Spearman rank-order statistic of .89, suggest a strong positive relationship between women's opportunities for post-primary education and their participation in the non-agricultural sector. It should be noted that the Spearman statistic is not a true correlation coefficient and as such does not indicate that two data sets necessarily co-vary. Concordance in rankings may just as well reflect multicollinearity - that the two variables being measured are both linked to a third unspecified causal factor. Moreover, with only six ranked items chance results are always possible. However, the results lend credence to the assumption that education is a prerequisite for female employment in the modern sector, and very likely more so than in the case of males, both because of the reluctance of many employers to hire women and because of the types of jobs for which women are recruited. In societies in which females traditionally played an important rôle in agricultural production, some post-primary education probably induces women to leave the agricultural sector and enter the wage-labour market, whereas in the societies characterized by restrictive sex-role norms, secondary or university level education provides access to the technical and professional occupations considered suitable for high-status women.

Table 5. Comparison of country rankings on female participation in the non-agricultural sector with female proportion of total population 15 and over with post-primary schooling

	Female participation non-agricultural sector		Female proportion of population 15+ with post-primary education	
	Percentage	Rank	Percentage	Rank
Mexico (1970)	31	4	39	4
Ghana (1970)	48	6	41	5
Kenya (1976, 1969)	18 1/	3	24	2
Egypt (1966, 1960)	11	2	26 2/	3
Pakistan (1972)	4	1	21	1
Philippines (1973, 1965)	46	5	49	6

Spearman Rank Order Statistic = .89

1/ Formal Sector

2/ This figure includes primary-school graduates.

Source: for Mexico - Census data in Dirección General de Estadística, 1972: 313, 325, 657; for Ghana - provisional 1970 Census data supplied by Division of Demographic and Social Statistics; for Kenya - 1969 census data in Statistics Division, 1971: 1, and unpublished data from the 1976 labour enumeration of the formal sector; for Egypt - census data from 1960 in Central Agency for Statistics, n.d. and labour-force data from 1966 in ILO, 1974: 144-145; for Pakistan - unpublished data from the 1972 Housing, Economic, and Demography Survey Supplied by the Census and Registration Office; for Philippines - data from the 1973 labour-force survey in National Census and Statistics Office, 1975: 698-699, and the October 1965 labour-force and household survey in Bureau of the Census and Statistics, 1966: 35.

There is not as strong a correlation between the scope of women's traditional economic rôles and their degree of participation in the modern sector, particularly as reported by official labour-force statistics. This author's estimate of total female labour-force participation rates in Kenya, utilizing unpublished data from sample surveys conducted by the Central Bureau of Statistics, places it at approximately the same level as Ghana's. With some adjustment for the age-base in data-collection the rankings of the six countries, from lowest to highest, in female activity rates are Pakistan, Egypt, Mexico, Philippines, and Ghana-Kenya. When compared with country rankings on women's rates of participation in the modern sector, this yields a Spearman rank order statistic of .57, which is a positive but relatively weak relationship. Although in both Kenya and Ghana women traditionally supplied much of the labour for agricultural production and enjoyed considerable autonomy and freedom, the earlier availability of schooling for women in Ghana has brought about a far higher rate of female participation in the non-agricultural sector. Moreover, despite cultural norms which discourage females from working outside the home, women's opportunities for post-primary schooling in Mexico also have enabled Mexican women to attain higher rates of participation in the non-agricultural sector than in Kenya.

Further evidence of the importance of education as a determinant of female labour-force participation derives from a comparison of the educational attainment of males and females in the labour force (Table 6). In the four countries for which such data are available - Mexico, Ghana, Egypt, and the Philippines - aggregate levels of female educational attainment in the adult population are lower than for males. The statistics on illiteracy, already discussed, provide one such manifestation of this educational imbalance. It is therefore striking that in two of the countries, Mexico and Egypt, the proportion of illiterate females in the working force was lower than the proportion of uneducated men, and that in a third, the Philippines, the incidence of illiteracy among female workers was lower than the incidence in the general population. Ghana constituted the major exception to

Table 6. Sex differences in the distribution of workers in the labour force of four countries (percentage)

Level of Educational attainment	Mexico (1970)		Ghana (1970)		Egypt (1969)		Philippines (1965)	
	Males	Females	Males	Females	Males	Females	Males	Females
Illiterate	20	15	63	83	63	59	12	18
Reads and Writes					27	11		
Primary			8	7			63	60
1-3 years	38	21						
4-6 years	32	31			7(1)	24(1)		
Intermediate								
7-9 years	9	22	13	8				
10+	7	12						
Secondary			5	2			16	12
University			1	1	2	6	7	10

(1) Less than a secondary education.

Source: for Mexico - 1974 Banco de Mexico survey quoted in Elu, 1974; for Ghana - unpublished 1970 census figures; for Egypt - the Central Agency for Mobilization and Statistics, 1969, quoted in Khalifa and Khalifa, 1973:59; for Philippines - Bureau of the Census and Statistics, 1966:37.

these trends. In the case of both males and females the percentage of adults who never attended school was higher in the labour force than in the population, probably because of the very high reported rates of participation in the rural sector. In three of the countries the most highly qualified educational group accounted for a higher proportion of the total female than male labour force and in the fourth, Ghana, there was no sex difference. Women's surprisingly high levels of educational attainment may reflect their later entry into the formal-sector labour force, especially in Mexico and Egypt, where labour-force surveys undercount rural women, since there is evidence for many societies that the educational credentials required for wage employment are rising rapidly. The over-representation of well-educated females in the labour force, relative to their proportions in the adult population also undoubtedly reflects higher rates of particiption among younger women, the occupational distribution of females in the formal sector, employer preferences, and possibly biases in the reporting of female economic activity.

III. OCCUPATIONAL DISTRIBUTION

All six of the countries surveyed are characterized by considerable occupational segregation based on sex-labelling of jobs and a resultant reservation of a wide range of occupations for either males or females. Although such patterns of occupational segregation occur in most economies, the clustering of females in a limited number and type of jobs is usually more profound in third-world countries. In some cases, particularly in Muslim societies, cultural norms prescribing sex separation restrict female job opportunities. In the majority of economic systems in low-income countries, however, the distribution of males and females in modern employment has little to do with the traditional division of labour or sex norms. Instead it appears that the late entry of females into modern-sector employment, itself a result of their delayed access to education, frequently has enabled males to gain the edge in fields which tend to be female-stereotyped in industrialized societies, as well as to dominate many of the traditionally male occupations. Once males have been recruited, even if originally because of the unavailability of suitably educated females, it has usually created a tradition of male employment in a particular occupational sub-sector. Later, when females with the appropriate

educational qualifications apply for jobs in these sub-sectors, employers are reluctant to hire them, either because they do not want to have women and men working together or because they then consider the work to be more suitable for males. Low rates of employment-generation in the modern sector also inhibit women from increasing their share of male-dominated job groupings, making it difficult for women to displace men.

The occupational distribution of males and females in the modern sector makes access to education a more significant determinant of female than male participation. As the data in Table 7 indicate, most of the non-agricultural occupations ostensibly not requiring much education fall to males in non-industrialized societies: males tend to dominate factory and production work, provide most of the skilled and unskilled labour, and also are better represented in the sales force than in most high-income countries. Females often do better in fields which require a secondary- or tertiary-level education. Somewhat surprisingly professional, technical, and related work, which usually necessitates the completion of at least secondary-level schooling, constitutes one of the occupational sectors with the greatest opportunities for female participation outside of agriculture. With the exception of Mexico, female representation in professional, technical, and related work is higher than in clerical and secretarial jobs, and in most of the countries female representation in professional, technical, and related employment also exceeds their proportion of the sales cadre and of factory and production workers. More specifically, professional, technical, and related work has a female representation from about 20 per cent in Pakistan to 60 per cent in the Philippines and female professional and technical workers account for between 2 and 18 per cent of women in the labour force in the six countries.

Table 7. Female representation in occupational groups by country (percentage

Occupational Group	Mexico (1970)	Ghana (1970)	Kenya (1975)(1)	Egypt (1966)	Philippines (1974)
Professional, technical and related	34	23	29	24	60
Administrative, managerial, and executive	16	5	16	4	20
Clerical and secretarial	41	15	23	10	46
Sales	28	88	30	6	58
Agriculture and fishing	6(2)	43	60(3)	3(2)	21
Factory and production	13	35	11	4	39
Service	44	23	-	16	65

Note: Data disaggregated by sex were not available for Pakistan. Totals do not necessarily add up to 100 per cent because females not categorized by occupational group were not included.

(1) Formal sector employment, excepting agriculture.
(2) Female participation is grossly underestimated.
(3) This is a rough estimate by the author from unpublished sample surveys conducted by the Central Bureau of Statistics on the small-farm population.

Source: For Mexico - 1970 census data in Dirección General de Estadística, 1972; for Ghana - unpublished 1970 census data; for Kenya - unpublished data from the labor enumeration of the formal sector for 1975 and the integrated rural survey data for 1975; for Egypt - 1966 census data in ILO, 1974: 145; for Philippines-1974 labor force survey reprinted in Castillo, 1976.

A comparison of male and female representation in professional, technical, and related work, computed as a percentage of their total participation in non-agricultural work, and shown in Table 8, confirms the relative importance of such work for females. In four of the five countries for which the data were available female participation rates in professional, technical, and related work were higher than male rates. Ghana was the exception to this pattern, probably because of the higher rates of female participation in sales and in factory and production work than in the other countries.

Table 8. Sex differences in representation in professional, technical, and related work computed as a percentage of total participation in non-agricultural work

	Percentage Participation in Professional, Technical and Related Work	
	Females	Males
Mexico, 1970	11	8
Ghana, 1970	4	11
Kenya, 1975	34	15
Egypt, 1966	18	7
Philippines, 1970	14	11

Source: ILO, 1974: 145, 189, 197; and unpublished data for Kenya made available by the Central Bureau of Statistics.

However, many occupational groups which absorb a large proportion of females with secondary-level schooling in developed countries tend to employ males in non-industrialized societies. Female representation in clerical and secretarial work, fields controlled by females in most industrialized economies, is high only in Mexico and the Philippines, and even there is below the levels of Europe and the United States. Similarly, women's proportion of the primary-school teaching force tends to be lower than in industrialized countries, with the exception of the Philippines and, to a less extent, of Mexico, and women constitute a majority of secondary-school teachers only in the Philippines.

Of the six countries, the distribution of females in the modern sector in Mexico most closely approximates the configuration in high-income countries, partly because of the more advanced level of industrialization and partly because of the nature of the educational system. In Mexico alone of the countries the non-agricultural sector has expanded sufficiently to assume a relatively dominant economic position. As a semi-industrialized country many dimensions of the Mexican economy, such as the size of the service sector, resemble patterns in high-income countries. Moreover, the sex-streaming characteristic of Mexican secondary education places a high proportion of the female students in terminal vocational courses that prepare them specifically for office, sales, and service sector jobs.

An analysis of the relationship between aggregate levels of female educational attainment, as measured by the female proportion of the population aged 15 and over with ten or more years of schooling, and female participation in the professional and technical occupational group suggests a close link between the two variables. As shown in Table 9, the Spearman rank order statistic yields a result of .83, indicating a strong positive association. Presumably then women's access to secondary and university training very much influences their opportunities for employment as professional and technical workers, regardless of the traditional sex-role norms and irrespective of the structure of the economy.

Table 9. Comparison of country rankings on women's participation in the professional and technical occupational group with female proportion of total population 15 and over with ten or more years of schooling

	Female Participation in Professional and Technical Group		Female Proportion of those with 10+ Years of Schooling	
	Percentage	Rank	Percentage	Rank
Mexico (1970)	34	5	40	5
Ghana (1970)	23	2	36	4
Kenya (1975, 1969)	29	4	25	3
Egypt (1966, 1960)	24	3	23	2
Pakistan (1972)	20(1)	1	21	1
Philippines (1974, 1965)	60	6	45	6

Spearman rank order statistic = .83

(1) Estimated by the author. Women's representation among teachers, the largest single sub-group, was 28 per cent but it was very low in most other sub-groups. The 1961 census showed females to constitute about 10 per cent of professionals in Pakistan.

Source: Same as for Table 5 and also for Pakistan - Bureau of Educational Planning and Management and Central Bureau of Education, n.d.

A similar analysis of aggregate rates of female educational attainment and female representation in other occupational groups also suggests a link between women's opportunities for education and their representation in some sub-sectors. When country rankings on the female proportion of the population aged 15 and over with some post-primary schooling, shown in Table 5, are compared with country rankings, derived from the data in Table 7, on women's representation in factory and production work, they yield a Spearman rank order statistic of .96. The congruence between female representation in post-primary schooling and sales work is .88, and between female representation in post-primary schooling and clerical and secretarial work is .61. Country rankings listed in Table 9 on the female proportion of the total population 15 and over with ten or more years of schooling, when computed with country rankings detailing the proportion of female workers in occupational groups in Table 7 result in a Spearman rank order statistic of .83 for women's representation in the managerial, executive, and administrative cadre and .96 for women's representation in clerical and secretarial work.

IV. EDUCATION-SPECIFIC RATES OF LABOUR FORCE PARTICIPATION

Education-specific rates of labour force participation measure the percentage of the total stock of a population of working age with a specific level of educational attainment that is actually working. A disaggregation of education-specific rates by sex provides a clear indication of sex differences in the relationship between education and work participation. It should be noted, however, that for reasons mentioned previously some of the data sources are not entirely reliable and many also are fragmentary. It was possible to disaggregate sex-education-specific data for two countries, Ghana and the Philippines, and to obtain comparable data for both sexes for Mexico on the absorption of school-leavers into the labour force between 1961 and 1970. These data are presented in Table 10. Table 11 compares estimated female education-specific rates of labour-force participation in the five countries for which data are available. It should be noted that the data sources on Mexico in the two tables differ and that the figures in Table 11 refer to education-specific rates of female participation, not to rates of absorption of school-leavers into the labour force. The National Impact Survey of 1969 provided the data base for the Pakistan estimates, and since the Impact Survey covered only ever-married women between 15 and 45, the group of females likely to have the highest work participation rates, those who were unmarried and well-educated, were excluded.

Table 10. Sex differences in education-specific rates of labour-force participation

Years of schooling	Labour-force participation rates					
	Mexico (1961-1970)		Ghana (1970)		Philippines (1965)	
	Female	Male	Female	Male	Female	Male
None	-[1]	-[1]	63	91	42	81
1-5 or 6	14	57	61	89	30	68
6 or 7-9	29	55	33	79	21	51
10-12 or 13	78	68	24	84	30	74
13+	58	84	63	98	53	57
Completed University	-	-	-	-	77	86

1. Based only on absorption of school-leavers and therefore no data were available on uneducated persons.

Source: for Mexico - Muñoz and Lobo, 1974:13; for Ghana - unpublished data from the 1970 census; for the Philippines - Bureau of the Census and Statistics, 1966:38.

Table 11. Estimated female education-specific rates of labour-force participation in five countries

Years of schooling	Labour-force participation rates				
	Mexico (1970)	Ghana (1970)	Egypt (1969, 1967)	Pakistan (1969)[3]	Philippines (1965)
None	8	63	2	24	42
1-3	15	51	2[1]	13	30
4-6	19				
7-9	68	33	17[2]	10[4]	21
10+	57	24		27	30[5]
11-13					
University	63	47			53
Completed University					77

1. Reads and writes.
2. Less than a university education.
3. Data base in ever-married females aged 15-45.
4. 6-9 years.
5. Completed secondary school.

Source: Rates were computed by the author from the following: for Mexico - Dirección General de Estadística, 1972, and Elu de Leñero, 1975:75; for Ghana - unpublished data from the 1970 census; for Egypt - Central Agency for Public Mobilization and Statistics, 1974:38 and Central Agency for Public Mobilization and Statistics, 1969; quoted in Khalifa and Khalifa, 1973:59; for Pakistan - unpublished data from the Impact Survey made available by Ismail Sirageldin; for the Philippines - Bureau of the Census and Statistics, 1966:38.

As the data in Table 10 show, male economic activity rates tend to be significantly higher than female rates at each level of education and also tend to be less variable across educational groupings. Although a similar U-curve pattern characterizes the relationship between both male and female educational attainment and labour-force participation in Ghana and the Philippines, the curve for men is much flatter, with only 19 points between the peak and trough in Ghana and 36 points in the Philippines, as contrasted with 39 points in Ghana and 56 points in the Philippines respectively for females. In Ghana the lowest male activity rates come for men with middle education (seven to nine years of education) whereas for women the bottom of the curve occurs at the secondary stage. In the Philippines both males and females with partial secondary schooling have the lowest rates. The pattern for Mexico is somewhat different in that female rates rise with increasing educational attainment up to 12 years of schooling and then decline again. In contrast, for males there tends to be a monotonic increment with each additional level of schooling, with the resultant increase of rates from 57 per cent to 84 per cent. The greatest sex disparities in the Mexican data are for males and females with between one and five years of primary schooling. Among school-leavers with ten to 12 years of education, however, females have a higher recorded rate of absorption than males, 78 per cent as compared with 68 per cent.

Comparisons of female education-specific rates of labour-force participation reveal three patterns. In Ghana, the Philippines, and Pakistan, three societies with very disparate cultural traditions and educational systems, female rates initially decline with increasing educational attainment and then rise again in a U-shaped curve. However the rate of participation for specific levels of schooling varies considerably among the three countries. The very low activity rates of women in Pakistan are striking and for the intermediate and higher stages of education compare unfavourably even with Egypt, which shares a similar cultural heritage. In contrast, the Mexican configuration, both with regard to data on absorption of school-leavers into the labour force and data on education-specific work participation, resembles an inverted U curve in that female participation peaks with about nine or ten years of schooling and then decreases somewhat. Nevertheless the activity rates of Mexican females with higher education remain considerably higher than for females with less than ten years of schooling. In Egypt each increment in education appears to bring a higher rate of participation, but the aggregated nature of the Egyptian data may obscure fundamental differences among women with primary, partial secondary, and completed secondary education.

More accurate data and/or disaggregated data very probably would change the pattern somewhat for several of the countries. Such data would probably raise rates of participation for uneducated and little-educated females in Mexico, Egypt, and Pakistan. Data which differentiated between some and completed university education, now available only for the Philippines, might reveal that the considerably higher rates that correspond with having a university degree in the Philippines characterize other countries as well. These adjustments suggest that the configuration of female-specific rates may approximate a U-curve in all of the countries.

These data imply that increments in educational attainment do not necessarily facilitate female labour-force participation. In Ghana, Pakistan, and the Philippines an intermediate or secondary-level education correlates with a significant reduction of female economic activity rates. Recorded female labour-force participation declines from a high of 63 per cent for uneducated women to a low of 24 per cent for secondary-educated females in Ghana, a total of 39 points. Although having some primary education has little effect on women's participation rates, changed circumstances associated with exposure to secondary schooling appear to have profound implications for women's ability or inclination to find suitable work. Similarly, an intermediate educational attainment in Pakistan coincides with a 14 per cent decrease in labour-force participation as compared with uneducated females and a 17 per cent lower rate than women with secondary schooling or higher education. Reported labour-force participation rates for females with a partial secondary-stage education in the Philippines represent a 21-point dip from the levels of uneducated women and an even greater decrease as compared with females that have completed their university training.

From the available data, it appears that uneducated and little educated females in most non-industrialized societies continue to pursue women's traditional types of work in agriculture, food processing, and in some, such as Ghana, the Philippines, and Kenya, petty trading. Most men with comparable levels of education remain within the agricultural sector as well but are better able to earn money from cash cropping and to find supplementary sources of income from part-time wage-labour. The number of jobs for uneducated or primary-educated males in the modern sector as

unskilled, semi-skilled, and skilled labourers, while relatively small, still far exceeds those available for females. With greater education both females and males tend to seek employment within the non-agricultural sector of the economy, partly because traditional agricultural labour and petty trading are not considered to be suitable types of work for the educated, partly because education may stimulate a disdain for manual work, and partly because schooling is perceived as a passport to the higher incomes and prestige associated with wage-employment. However, the large disparities in labour-force participation rates between males and females with intermediate and secondary levels of educational attainment attest to the greater facility of males in making the adjustment from agricultural to modern-sector employment.

Structural factors appear to be a major determinant of these relatively low levels of female participation in the modern sector, many of which resemble the configuration of economic and social variables that pushed women out of the labour force and into the home at the time of the industrial revolution in Europe and the United States. From the available evidence, including both tracer studies and attitudinal surveys, educated women in all six countries seem to have very similar aspirations for employment to those of educated males. Lack of interest in or motivation to work does not seem to be a serious constraint in any of the societies, with the possible exception of upper-class women in Mexico and Pakistan, who are affected by the prevailing leisure-class ethos that frowns on women working, but they are a small minority. It should be noted that few modernizing societies have a tradition of active volunteerism that could provide educated women with alternative ways of spending their time.

The structure of the economy and the resultant sex- and education-specific opportunities for labour-force participation tend to operate to the disadvantage of females. The small size of the modern sector and its slow rate of growth severely limit its ability to absorb prospective workers, whether male or female, in all the countries, with the partial exception of Mexico. Moreover, as mentioned previously, a majority of occupational groups are sex-stereotyped as appropriate for males in most of the countries, often including many of the types of employment that typically recruit females in more advanced economies. The late entry of females into the wage sector, the nature of the educational training they receive, and their family responsibilities also place them at a disadvantage in competing with males for openings in the modern sector. In Mexico the larger size of the modern sector and the greater opportunities for wage-employment for females, many of which are geared to females with secondary schooling, such as secretarial and clerical work, primary-school teaching, and retail selling, result in a different pattern of education-specific rates of participation: female secondary-school-leavers have the highest rather than the lowest rates and may have higher rates than males.

Historically, employment for literates in all of these societies fell almost exclusively to males, and males continue to dominate modern-sector employment. The earlier access of males to secondary and university-level education conferred an initial advantage in securing high status and well-paying positions. It meant that a much larger number of educated males entered the labour force at a time when the imbalance in supply and demand for educated manpower favoured the job seeker. Generally this period in which there was an excess of available jobs as compared with eligible candidates coincided with the peak of sex inequalities in educational opportunity. Of the total number of females with secondary and university-level training in any of the six countries, a far higher proportion than males are recent school-leavers, and these women confront a very changed labour market from the graduates of a generation ago. The rapid expansion of the educational systems in all of these countries during the past 20 years has far outstripped the wage-employment creation potential of the economies and therefore has given rise to a surplus labour market in which the number of job-seekers far exceeds the demand. In turn this has enabled employers to raise the educational qualifications required for many types of employment. Thus the school certificates and degrees that women receive can no longer command the kinds of jobs men regularly obtained with similar credentials ten, five, or even two years before.

A surplus labour market generally operates to the advantage of males. Employers' preferences for recruiting males, whom they consider to be more reliable, committed to working, and less costly (since men are not eligible for maternity leave and benefits), juxtaposed with an abundance of male job-seekers, tends to make females less competitive. In a surplus labour market employers tend to be more selective regarding educational credentials both in the level of education and in the subject or field specialization demanded, and the relative availability of opportunities for schooling

and the types of subjects which females are offered or elect place them at a competitive disadvantage in the two regards: the absolute number and relative proportion of females tend to decline at each step upwards on the educational ladder. Credential escalation therefore works to the relative benefit of males in that it reduces the pool of potential females eligible for employment. The over-representation of females in arts and their under-representation in professional and technical fields has a similar effect. Arts graduates without career training frequently find themselves the most surplus from of manpower and the least preferable from the employers' perspective when there are sufficient numbers of candidates with quantitative skills or professional and vocational qualifications.

The countries vary in the extent to which females are rendered uncompetitive by these factors. The situation in the Philippines differs from that in the other countries in that females have parity at the secondary stage and dominate university-level education and therefore in terms of number can better compete with males and adjust to changing conditions in the labour market, including accepting opportunities for emigration. However the clustering of Filipina in teacher-education and the arts, at a time when the absorption rate of university graduates in these fields in the labour market is decreasing rapidly, may lead to reduced participation rates for female university graduates in the future. The vocational orientation of much of the secondary schooling in Mexico limits women's educational and career horizons by preparing them for a particular occupational niche from which there are few chances for advancement, but it does have the benefit of making them more employable, as attested to by the higher activity rates of Mexican women with this level of schooling as compared with the other countries. The "fit" between the pattern of occupational segregation in the labour market and the sex-streaming in the educational system suggests that Mexican women have realistic expectations regarding their career opportunities, but such realism or acceptance of the status quo in turn reinforces sex-stratification in the occupational structure. As a consequence, although the number of women employed in the modern sector in Mexico has increased significantly during the last 30 years, the actual range of employment options for females has not. Of the female university graduates, a higher proportion of those in Mexico follow professional, scientific, and technical programmes as well, but the unavailability of data upon which to compute activity rates of university graduates in Mexico makes it difficult to know the extent to which such specialization affects female employment.

In most non-industrialized societies females with higher education have higher rates of labour-force participation than females with secondary schooling, which suggests that the employment prospects of females with tertiary education are better, although still far below those of comparably educated males. Doubtless this reflects the more favourable balance between supply and demand for such highly educated manpower. In at least two of the countries, Philippines and Mexico, females with university training have maintained high rates of participation despite a major expansion of tertiary-level education. In Ghana and Kenya the slower growth of the university systems did not produce a surplus of graduates on the labour market until very recently. Although females with more than ten years of schooling in Pakistan have higher activity rates than less-educated women, their overall levels of economic participation compare unfavourably with the other countries, in part because women are recruited into a narrower range of professional and executive positions and in part because there has long been a surplus of graduates in the arts and humanities fields, which account for virtually all of female registration.

Projected trends in most of the countries suggest that sex differences in education-specific rates of labour-force participation will increase rather than decrease in the future in response to the pressures of larger surpluses of trained job-seekers in the labour market. Under such circumstances of extreme competition for jobs among school-leavers it is difficult to envisage females with some post-primary or secondary schooling improving their relative share of wage-employment or female university graduates maintaining theirs. Women may even begin to experience serious competition with men in fields which hitherto have recruited females.

V. CONCLUSION

In conclusion, sex differences in educational opportunities have had a major rôle in structuring labour-force participation in a variety of ways, including the development of patterns of occupational segregation and the lower education-specific activity rates of females. However, these findings do not translate into clear policy recommendations. The failure to attempt to rectify existing imbalances will relegate females indefinitely to a subordinate position in the modern sector, and the longer the

present disparities are allowed to exist, the less chance women will have of closing the gap. On the other hand, massive investments in educational infrastructure to equalize male and female enrolments would further depreciate the currency of education and therefore would not enable women to receive equal benefits from their schooling.

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Half-study/half-work schools in the Socialist Republic of Vietnam

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GENERAL EDUCATION POLICY AND TRENDS

Looking back over the last thirty years (1945-1978), we can see that, in spite of a long and devastating war, and in spite of the fact that it started out from a practically non-existent base, Vietnam has achieved considerable results in the field of education. Illiteracy is being eradicated. Millions of people now receive further instruction [1]. There are now 12 million pupils in general education, 300,000 teachers and 20,000 schools in a country of 50 million inhabitants, with a territory stretching over 2,000 km. and sixty-odd ethnic groups.

The qualitative changes that have occurred are no less important. Education, which was formerly an instrument of colonial domination [2], is today in the service of the socialist revolution. The national language, which has been considerably enriched, has become the vehicular language [3]. The social background of pupils and students has changed: children of workers and peasants now form the bulk of the school and university population, although to a lesser degree in the south at present. By and large, countless cadres of working-class and peasant origin have had the opportunity of attending further instruction classes before going on to university [4]. In addition, teaching has contributed to the gradual elimination of the backwardness of ethnic minorities, gradually raising their cultural level [5]. In answer to the requirements of the economy and of the countries administrative and cultural bodies, the education system turns out the requisite technical, administrative and political cadres.

Essentially, the dynamism of education in Vietnam stems from the fact that it is a child of the Revolution, whose paramount goal is to serve the Revolution. Step by step, education seeks to adhere with every fibre to each stage of the Revolutionary movement. It is born, on the one hand, of the concrete demands of a colonized nation that, having struggled for its independence and reunification, is now engaged in the arduous task of economic and cultural construction designed to carry

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1/ Lê Thanh Khôi, "Alphabétisation et révolution: l'expérience vietnamienne", in Perspectives, Vol. VI, No. 1, 1976.

2/ Cf. Pham Trong Chanh, "Le système scolaire colonial au Viêt-Nam de 1939 à 1945", Mémoire en vue du diplôme de l'Ecole des Hautes Etudes en sciences sociales, Paris, 1975.

3/ Cf. Lê Kha kê, "La création d'une terminologie scientifique en langue nationale", in Etudes Vietnamiennes, No. 5, May 1965. Hanoi: Ed. en langues étrangères, p. 114-144.

4/ Cf. Hoàng Tu Dong, "L'enseignement complémentaire pour adultes", in Etudes Vietnamiennes, No. 30, 1971. Hanoi: Ed. en langues étrangères.

5/ Cf. Nhât Hung, "L'enseignement au service des minorités nationales", in Etudes Vietnamiennes, No. 15, 1967. Hanoi: Ed. en langues étrangères, p. 115-128.

it directly from the feudal and colonial regime to socialism, leaping over the stage of capitalist development; on the other hand, the directions and forms adopted by this education policy are the outcome of the constant deepening of marxist educational doctrine.

The organization of education in Vietnam has followed closely in the footsteps of the different stages of the revolutionary movement. Broadly speaking we may say that, during the first phase, between 1945 and 1960, the revolution was essentially national and democratic in nature [1/], while from 1950 onwards, in the northern half of the country, constructing socialism became the chief concern [2/]. Since 1976, when the country was reunified, a unified system of education has spread throughout the whole country.

During the first phase, general education sought to resolve the following basic problems:

1. To eradicate illiteracy by means of an unprecedented mass movement, which rapidly produced results.
2. To give the national language its legitimate place as the vehicle for teaching throughout the education system.
3. To build a network of schools covering the entire country, and to do so in spite of the difficulties encountered in time of war.
4. To establish a close link between school work and political activity, and with the fight for national liberation in particular.

In this phase, the first task was to bring within a single, unified system, schools which had operated after their own manner virtually everywhere; this was achieved through the reform of 1951. At that time, the school system comprised:

1. Nursery schools for children aged 3-6.
2. Primary schools with 4-year courses for children aged 7-11 who had already attended preparatory reading and writing classes.
3. Secondary schools for children aged 12-15, with a 3-year course.
4. Fifth and sixth form colleges for adolescents aged 15-18, lasting 3 years.

After completing the sixth form (hence after completing 10 classes), pupils may compete for entrance to university or the advanced technical colleges; those who have completed secondary school (7 classes) may also apply for admission to secondary technical colleges if they have not gained admission to the fifth form.

In addition to this school system, there was a network of complementary courses for adults, also divided into 3 cycles, with a syllabus similar to that used in the regular schools, though slightly adapted to adult requirements and capacities, based on a kind of "pedagogy of alternation" [3/]. The main purpose of these schools is to complete the general education of workers and cadres.

Between 1965 and 1975, the school and university network spread, in step with the pace of economic and cultural development, and it did so in spite of war conditions then prevailing. Today, half a million adults attend schools especially run for them, combining study with their regular jobs. Nearly all key personnel in local administration and co-operative managers [4/] have completed their primary studies, and 30 per cent have also completed the secondary stage; 50 per cent of key district, province, town or arrondissement officials have completed their secondary stage, while 20 per cent have also completed the sixth form stage.

1/ Lê Duan, La Révolution vietnamienne: problèmes fondamentaux, tâches essentielles. Hanoi: Ed. en langues étrangères, 1970.

2/ Op. cit.

3/ Leon, Antoine, Psychopédagogie des Adultes. Paris: Presses Universitaires de France, 1971, p. 161.

4/ Cf. Etudes vietnamiennes, Problèmes agricoles, Vol. 5: La gestion des co-opératives. Hanoi: Ed. en langues étrangères, 1977, Cf. also Thai quang nam., Le mouvement de coopération agricole en République socialiste du Viêt-Nam: problèmes, stratégie et expérience. Mémoire de 3ème cycle de l'IDES (IDES doctoral thesis) 1970.

All school-age children attend school throughout the primary and secondary stages (to 15). The fifth and sixth forms (third stage) are expanding fast. Over 50 per cent of pupils in all three general-education stages today are female. Each year, over 400,000 youngsters pass their secondary school-leaver's certificate (at 15), while over 70,000 pass their general certificate of education (sixth form). Lastly, a dense network of nursery and preparatory schools exists with places for nearly 350,000 children aged 3 to 6 and for 901,000 aged 6 and 7 [1].

The education system which has been built up since 1945 has the immense merit of having created a school system covering the entire country, of having decisively raised the cultural level of the population; nevertheless, the trials of wartime and the building of socialism revealed shortcomings and deficiencies, some of them serious. Although it had changed considerably, the teaching remained "academic" and was not always in tune with what was going on in the country at large; the acquisition of knowledge, much of it book-learning, the examination and competition rat-race, and the competition for university places, all tended to take priority over the creation of the new man, the socialist worker. In the countryside, young people with an education wanted to leave their village; what is more, the universities were no longer able to provide places for all the youngsters completing sixth form studies, and university entrance exams were becoming an obsession with parents and pupils.

The most serious and most fundamental shortcoming concerned the quality of the teaching and the overall training received by pupils. This was made all the clearer by the fact that education was still insufficiently attuned to the transformation that society was undergoing, and was not yet properly linked with productive work. Schoolchildren and students were ideologically unprepared and had not yet become fully conscious of the significance of their work. Their cultural and scientific level was inadequate, as was their physical health, all essential if they were to rise to the call of the moment.

The development of education laid bare a great many inequalities. General education (all 3 stages) is not yet universal; further education for adults needs to be extended; there are still substantial quantitative and qualitative differences between town and country, plains and highland regions.

Another rather fundamental shortcoming, from which to a certain extent the others flow, lay in the fact that by no means everything that could have been done to improve the training of officials and teachers had in fact been done [2].

Over the past thirty years the quality of education in Vietnam has improved constantly, as a result of changes and reforms enacted.

The first educational reform was undertaken in 1951, right in the middle of the resistance to the French; its effect was to wipe out the vestiges of colonialism from the content and the system of education. With the advent of peace in 1954, the second educational reform (1956) inaugurated the age of construction of the socialist school. It took as its ideological platform Marxism and the policy of the Workers' Party of Vietnam (today the Communist Party), and took as its teaching method a combination of study with productive work; the third educational reform, currently being planned, will seek on one hand to satisfy the new needs that have arisen from reunification of the two school systems, North and South, and on the other hand to remedy the shortcomings described above. Moreover, it will no longer be concerned with extending the school system but rather with the content of curricula and teaching methods.

It is in this context that the setting-up of the half-study/half-work system in general education in Vietnam, and the introduction of productive work as an integral part of the curriculum, needs to be understood. In other words, this experiment, which is not unique [3], is simply that of Vietnam

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[1] Hồ True (Vice-Minister of Education). - "30 années d'édification de l'éducation au Viêt-Nam", in Etudes Vietnamiennes, No. 49: Problèmes culturels (I). Hanoï : Ed. en langues étrangères, 1977, p. 8.

[2] Hồ True, 30 années d'édification de l'éducation, in op. cit., p. 102.

[3] Cf. Perspectives, Vol. VII, No. 3, 1977. "Apprendre à travailler: école production", Paris, Unesco, 1977.

itself, where the construction of socialism in an economically and technically backward country, with a society obliged to undergo profound transformation both in its relations of production, ideologically and culturally, and in the fields of science and technology, has demonstrated that other kinds of school than the types left by the old social formations are needed.

SOCIALISM, EDUCATION AND PRODUCTIVE LABOUR

With the return of peace, North Vietnam rapidly bound up the wounds caused by war, and in 1958 struck out on the road to socialism. By 1961, practically speaking, the economic structures of socialism were established: the state sector occupied the predominant position in industry and trade, and private trade had been reconverted; nearly 90 per cent of peasant households had joined co-operative farms, while the co-operative movement was attracting many artisans and small traders. 1/

New tasks faced the education system, tasks which were spelt out in the resolutions of the Third Congress of the Workers' Party of Vietnam in 1960:

> "Our education must seek to mould the rising generation so as to create workers capable of acting as masters of the country, having a high socialist consciousness, with a good general and technical background, sound health, all-round people for the building of the new society; education must also contribute effectively to the training of cadres for economic and cultural construction, and to the uninterrupted raising of the cultural level of the labouring people."

The method of training proposed was the following:

> "To achieve this object, in education, we must hold firm to the principle of associating instruction with productive labour and to the directives: association of theory with practice, of study with action, of education through school with education through society."

The prevailing education policy at the time was founded on a sort of triptych: theoretical study, taking part in productive work, ideological and political education, the latter, according to officials, constituting the essential driving spirit, breathing ever more vigour into the system as a whole. This political training was stressed because, as Chairman Ho Chi Minh put it, "if we are to build socialism, we must first produce the men for socialism; and to do this, we must instil a socialist ideology in them."

On the subject of general education, the fundamental principle has always been to establish a link between school and life, which in practice means the social and political life of the community and the country. From the outset, productive work was included in school curricula in different degrees. It is done regularly in factories or workshops, in gardens belonging to the schools themselves; once a month, teachers and pupils alike spend a day repairing roads or dykes, replanting forests, helping to build factories, etc. This occasional participation in productive work helps to guide young minds towards a concrete apprehension of the tasks of national construction, and also generates far from negligible resources; however, there is no need to dwell on this aspect of the question, since what counts most of all is its educational value 2/. In application, this pedagogic principle has served to outline the basic characteristics of a kind of polytechnic education, introducing students to "the fundamental principles of the essential process of production and providing them with the skills needed to use the more elementary tools and machines". To avoid all risk of deviation in the application of this principle, it has proved necessary to lay down the aims of this approach:

1. To instil a new attitude towards manual work;
2. To establish a link between theoretical and technical knowledge, to teach pupils to apply their scientific knowledge to the job of production, to enrich their fund of knowledge acquired through practice and life;
3. To develop habits and a capacity for work to be able to produce material wealth.

1/ Cf. Vo Nhân Tri, Croissance économique de la République démocratique du Viêt-Nam, Hanoi : Ed. en langues étrangères, 1970.

2/ Cf. Van Rensbing Patrick, "Education et production: position du problème", in Perspectives, Vol. III, No. 3, 1977, p. 382.

We must be constantly on our guard against the technicist error which consists in disregarding the educational aspect and the acquisition of basic scientific concepts.

THE YOUNG SOCIALIST WORKERS' SCHOOL AT HOA BINH

"This school trains young people through study and productive labour, and through work young people can become self-sufficient. This is an excellent formula". (So wrote Chairman Ho Chi Minh in the school's visitors' book when he visited it on 17 August 1962).

The current trend in the Socialist Republic of Vietnam towards the extension of half-study/half-work schools did not arise overnight, nor is it an attempt to apply some pedagogical theory dreamed up by a brilliant educationist or planner. In actual fact it is the outcome of the convergence of theoretical research based on Marxism and the general line of the Communist Party of Vietnam, and of actual educational practice in pilot schools.

What gave birth to these schools is the concrete demands of life and the specific conditions of the country. It is not by chance alone that the first half-study/half-work school was founded in a mountain region, in Hoa Binh (now the province of Ha Son Binh), in North Vietnam. Mountains cover some two-thirds of Vietnam and are inhabited by roughly 13 per cent of the population. A great many minorities live side by side in these regions; the largest of them are several hundred thousand strong, while the smallest number barely a thousand [1]. The former regime had left these regions even more economically and culturally backward than the plains. Most of these minorities do not use ploughs or fertilizers, and have 100 per cent illiteracy rates. Superstition was rife, and malaria decimated whole populations.

As there is a good deal of fallow land in these regions, and as many young people have no more than a rudimentary education, it was decided to adopt a school system in which pupils would study while at the same time taking part in productive work. This was how the Hoa Binh school was born.

In 1958, after four years of economic reconstruction, Hoa Binh mobilized its population in a vast study and production movement designed to eradicate illiteracy and raise living standards. The first need was to develop farming, which entailed consolidating self-help groups, pointing the way to co-operatives, and to strengthen administrative and mass-organization personnel. To achieve this vital phase, upon which its future depended, Hoa Binh relied on its youth, its vanguard force. Young people had thrown themselves into the war of resistance (1945-1954) heart and soul; but now they were running into a major obstacle in that 90 per cent of them were still illiterate. While engaged in the struggle, these youngsters worked in order to supply at least some of their own needs, and in addition attended special classes organized for them. When the war was over, they went back to their villages, becoming educated cadres, having acquired a certain amount of experience in organizing and supervising work and having learnt new production techniques.

In answer to the requirements of the new situation, the Committee of Young Workers in Hoa Binh, on its own initiative, began recruiting young people in communes throughout the province, creating a half-work/half-study organization whose twofold purpose was to provide them with the knowledge they needed and simultaneously with the means of their own subsistence. The provincial committee of the Workers' Party welcomed this initiative, and the Administrative Committee of the province gave assistance to this end. A contract awarded by the Department of Road Communications for the repair of the Cau Rong road provided the necessary funds for setting up a school.

It ought to be pointed out that, to begin with, the going was not all that easy. The Youth Executive Committee had to call a conference of district cadres that lasted three days in order to dispel doubts and misgivings. The idea of a "half-study/half-work" school was very new and provoked heated arguments: for many people, the thought of a school without brick buildings, with pupils wielding something other than a pen day in, day out, was simply unthinkable!

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[1] Cf. Etudes Vietnamiennes, No. 15. Régions montagneuses et minorités nationales en République du Viêt-Nam. Hanoi: Ed. en langues étrangères, 1969.

The school was inaugurated on 1 April 1958: an itinerant school, travelling with the repair gang along the seven-kilometre road. There were 300 pupils in all, recruited from the different ethnic groups of the province, most of them members of the Youth Movement [1/].

In spite of countless difficulties, including, among others, the dropping out of half the pupils, the first school year ended simultaneously with the completion of the road. Between 1959 and 1961, within three sessions, the number of pupils increased from 220 to 650, and the number of teachers from 6 to 16. The school, which initially took the name School of Work, and later Young socialist workers' school (Ecole des Jeunes Travailleurs socialistes or E. J. T. S.), in 1958, travelled with the work in progress: after repairing the Cau Rong road, it went on to build a dam to irrigate one hundred hectares of rice paddy, and then to build Road No. 24, a length of 13 km. The pupils' work enabled them to pay for their upkeep while continuing their studies.

Taking as its starting point the demands imposed by the economic and cultural development of Hoa Binh, the E. J. T. S. has devised a curriculum based on the primary- and secondary-school curricula, consisting of four sections:

- general education, teaching pupils to read and write the common national language (Vietnamese) fluently, arithmetic, report writing;
- organization and management methods, particularly those related to youth organization and guidance of youth activities in the villages;
- science and technology, introducing pupils to a scientific approach to work, and to new farming and stockbreeding techniques;
- politics, the basis of ideological and moral training, designed to raise their political consciousness, to teach them the basics of socialism, especially, and this is important, concerning the avenues and methods leading to socialism in regions inhabited by ethnic minorities.

These four sections have trained 1,518 people, who came to the school illiterate, or barely able to read and write, and who managed to complete their primary course. Six hundred pupils have now returned to their native villages and now work in local administration, or in the administrative organs of the Party or the Youth movement. The E. J. T. S. has supplied the provincial administration with 295 young cadres. It has sent 477 of its pupils on to the secondary school for animal husbandry, to the further school for workers and peasants, and to the fifth and sixth form college of general education. It should be noted that, in addition to covering the cost of their upkeep and studies, the E. J. T. S. pupils accumulated a reserve fund of 350,000 đồng, which subsequently proved very useful.

1961 ushered in a new era for the E. J. T. S. In Hoa Binh, as everywhere in North Vietnam, the socialist transformation of the economy was now complete. Farm co-operatives were developing healthily, demanding technically competent cadres and peasants, with greater organizational and managerial capacities. In January 1961, the Hoa Binh Regional Party Congress laid down a new line of development for the E. J. T. S.: henceforward it would cease to be an itinerant school, being instructed to reorganize itself as a fixed school engaged in farm production, with the task of training a generation of young cadres with a socialist consciousness, to be drawn from the national minorities. New guidelines were laid down for the school, with a policy of self-funding through the proceeds of its farm produce. Pupils were to receive ideological and moral training simultaneously with their actual studies and productive labour. In addition, a boarding system was instituted.

The fifth recruitment for the school, the first to pass through the reorganized school, numbered 1,138 pupils and 43 teachers, most of the latter coming from the plains. Starting-up capital consisted of the 350,000 đồng previously accumulated, of which the Administrative Committee used 300,000 to set up the new school. At the beginning of 1962 some fifty bamboo huts ready for use as classrooms, accommodation, lecture theatres, storehouses, a large clearing, a tapioca factory, etc., had sprouted up on either side of the Da River. The new school was arranged in four sectors, three or four kilometres by road for trucks, twenty-five kilometres by road for rudimentary cars winding among the hills, connecting up the four sectors of the school. On hundreds of hectares of hillside, manioc, tung and maize replaced the bush. Hillside tung pastures provided grazing for a herd of a hundred oxen and buffalo.

[1/] A mass organisation similar to the Young Communist Movement in socialist countries.

In 1962, when the school had still barely moved into its new quarters, teachers and pupils began clearing a new sector, 400 hectares of bush, intended as the site for an "industrial complex" to transform raw produce: manioc, groundnuts, and "mang tang" seed, into flour, vermicelli, sauces, oils and alcohol. This complex, as well as being an excellent practical laboratory for science lessons, actually brought in more revenue for the school, through the sale of its output, than did the farm produce. The school began to sign supply contracts with the provincial administration and the Ministry of overseas trade, which between them absorbed most of the produce processed here.

In 1970, ten years after its foundation, the E. J. T. S. runs an all-inclusive general education course, from primary level to sixth form. During this period it has turned out 9 classes of cadres, totalling 3, 029 pupils in all, including 1, 865 girls, and members of the "Muong", "Thai", "Zao" and "Meo" minorities. Seventy-one of them have completed their sixth form studies, and 963 their secondary studies. One thousand boys and 756 girls have returned to their native villages and now work in the co-operatives and the regional administration; 511 (178 girls) have been posted to various departments of the district and provincial administration; 524 pupils have gone on to university and technical secondary schools, 10 others have gone to study abroad, while another 157 are in the army.

Examination results of E. J. T. S. pupils are comparable to those achieved by pupils in regular schools in the general education system. Sixth-form pupils at the E. J. T. S. sit the same exams as those set to pupils in conventional schools, and the results obtained in 1969-70 (95 per cent pass rate) banished any lingering doubts as to the quality of teaching at the school. In the army, as co-operative cadres or regional officials, former E. J. T. S. pupils bring with them a new approach to work wherever they go, with a sense of leadership, a capacity for organization, and a willingness to roll up their shirtsleeves. Their familiarity with the latest techniques, their rational approach to work, their education and their exemplary morality fashioned during their years spent at the school, means that they exercise a positive influence over the work of the group or the life of the social milieux in which they live, in the fight against superstition and outmoded habits and customs still prevalent among the minorities.

In material terms, the school's productive activities, which are informed by a sound, applied, scientific background, and which are constantly improved by the application of new techniques, are producing ever-better harvests.

In all, 399 hectares are given over to farming, and the pupils grow manioc, maize, sweet potato, rice, groundnuts and herbage. Yields are increasing every year:

	1962	1969
Manioc	32 cwt 8/ha	193 cwt 72/ha
Maize	15 cwt	40 cwt
Sweet potato	40 cwt (1965)	110 cwt
Rice	49 cwt (1965)	81 cwt

The value of daily output per pupil increased from 3. 08 kg of paddy in 1962 to 6. 62 kg in 1969. Livestock raised has increased both in numbers and in unit weights:

	1965	1969
Oxen	317 head	490 head
	43 tons 9 (weight of meat)	337 tons 8 (weight of meat)
Pigs	60 head	222 head
	2 tons 76	6 tons 81
Buffalo	29 head	44 head
	6 tons 28	10 tons 72
Poultry	0 tons 719	1 ton 275

Farm-produce processing, and especially the manufacture of vermicelli, has boosted the school's income to the point where it is now capable of paying entirely for the upkeep of teachers and pupils. In 1963 farm produce was estimated at 151, 504 đồng. By the time the three factories (manioc flour, vermicelli and sauce, distillery) had been set up, in 1968, the total value of farm and industrial output had risen to 472, 492 đồng. Between 1963 and 1968 farm and industrial output due to teachers and pupils produced an income of 2, 450, 000 đồng for the school; 1, 975, 521 đồng were earned by industrial activities and 494, 974 by farming.

Each pupil receives an average of 23.60 dông per month for his upkeep. The school pays its teachers itself, according to pay scales laid down by the Ministry of Education. At the Feast of Têt (the Vietnamese New Year) and the main holidays, each pupil receives a gift for his family of products made by the school (alcohol, vermicelli, sauce, etc.) to a value of 20 dông; for Têt, the school also makes a cash payment of 15 dông per pupil. Outstanding teachers (who excel in their teaching and in the management of production work) receive an annual bonus worth 6-12 per cent of their annual salary.

The school has repaid the 80,000 dông borrowed from the State Bank, and can now draw up to 400,000 dông annually. Fixed assets in the form of basic buildings are valued at 1,399,000 dông, and include four factories:

- manioc flour
- liqueurs and alcohol (300,000 litres annually)
- vermicelli and sauce
- mechanical and joinery workshops, and forge.

It would be interesting to take a look now at the way the E.J.T.S. is organized and structured, having arisen from the school's three main functions: theoretical study, productive work, and ideological and political training. Through the Provincial Party Committee, the state has established a twofold plan for it:

1. A training programme, designed to turn pupils into cadres and citizens; this must strictly adhere to the Party and state line on education.
2. A production plan compatible with those of the province and the state.

The school's administration is responsible for the running of the school as well as for the organization of studies and production work. After a period of trial and error, the E.J.T.S. evolved a functional, efficient, administrative system, unified throughout from top to bottom. The Management Committee, which consists of a Director responsible for the overall running of the school, two deputy directors, one in charge of studies, the other in charge of production, work with a secretariat, which performs the administrative and financial tasks, farm management, procurement and sales. The only section directly responsible to an outside body is the Education Department, which is controlled by the provincial Department of Education. Altogether, the cadres making up the Management Committee, the Permanent Party Committee, the teachers' union, the Youth movement and staff account for no more than 5 per cent of the total school personnel. Each sector is run by a similar management structure, in direct contact with the school administration and with the actual classes, thereby ensuring mobility and rapidity of execution.

The school manages a total area of 450 hectares; this estate is divided into four sectors and an industrial complex, with an average of 150 pupils in each sector. The decentralized management of sectors extends down to the classes themselves, so that each unit has open to it a vast field of activity in which to deploy its initiative to the full.

Taking a closer look at this, we find that each sector acts as a kind of miniature E.J.T.S., with its own farm of roughly 100 hectares, operating independently of the others, responsible solely to the school's Management Committee. It is itself a school in its own right, with several classes from literacy up to secondary and even sixth-form level, plus a production unit. It exists to carry out the school's two plans: the instruction programme and the production plan. Each class, which is the teaching unit, also acts as a work brigade, a self-defence unit (remember, the country is at war), and a section of the Ho Chi Minh Youth Workers. The form-master's main task is to ensure that these four functions: education, production, defence and political and ideological training, are performed. Each form-master supervises studies, co-ordinates the timetable of lessons and homework for the week with the productive work to be done. He is also the technical adviser to and leader of the work brigade.

Pupils are organized into study and work groups, and the form-master takes care to consider pupil's health, their personal relations and their scholastic ability when forming these groups. They then form a Youth Movement section, electing an five-member executive committee: the secretary-general of the Youth Movement takes charge of class life and activities, while the four other members

respectively assume responsibility for studies, production, equipment and manpower. The form-master works closely with these five self-management cadres, organizing and running the class through them. His pupils live and work together, receive the same pocket money, articles for consumption, clothing and school supplies.

By way of example, let us take a fourth-form class (end of secondary level) in Sector II, with 24 pupils, most of them of "Muong" nationality. The class contains 14 girls and 18 members of the Ho Chi Minh Youth Workers.

All this class's activities are run by the form-master and the executive committee of the "Fourth Form Youth Section". The pupils are organized in three sections, and each section consists of groups of three youngsters, who live, study and work together. The five members of the Executive Committee are once again the five self-management cadres elected by the class. The secretary of the Committee runs the Committee and carries out ideological work among the pupils. The four other members organize studies, production, everyday life and the cultural activities of the class. The form-master acts as adviser, but the self-management cadres are responsible for the execution of the work and study plans.

Every week, the form-master and the five self-management cadres meet on Saturday evening to discuss the programme for the week ahead. Together they review the monthly programme, discuss the events of the past week, assess the workload for the coming week, and the time and labour needed accordingly. Then they examine the general class programme so as to strike a balance between study and work, avoiding overloading the timetable with classroom study or with backbreaking work. On Sunday evening, the Youth section secretary presents the plan to the assembled class. After discussion, the pupils are prepared for the week ahead, knowing in advance what they are going to have to study and do.

Each day is organized on the following pattern (4+4+1+3):

- 4 hours of classroom study,
- 4 hours of productive labour,
- 1 hour of sport or cultural activity,
- 3 hours of evening study.

The study curriculum is the same as that used in the general education system, although it also includes additional classes on agronomy or technology and financial management more appropriate to the pupils' immediate needs. Certain aspects deemed important in practice and production are studied in greater detail: for example, organic chemistry, which is useful in understanding the processing of farm produce, manioc especially. Pupils also attend classes on general politics, covering basic notions on the evolution of human society, on Marxist dialectics, political economy, etc., all of which is essential background education for commune cadres. On organization and management, they are introduced to regional Youth Movement administration methods, co-operative management methods and work brigade management methods. (See appendix 2: Allocation of time between study and work at the E. J. T. S.).

Several years' experience has shown that former pupils of the E. J. T. S. in Hoa Binh make better cadres than those trained in ordinary schools. They have a better grasp of practical realities, are not afraid of backbreaking work (because they are used to that kind of thing), are more acutely aware of their responsibilities to the community and society. What is more, it was quickly realized that the half-study/half-work system enables the school to pay its way, thereby obviating the need for state financial support, which represents an appreciable saving for the country. Over the last five years, youngsters leaving the school included 567 pupils having completed secondary education (to age 15), 462 having completed sixth-form studies. In university entrance exams, 42 per cent of the school's post-sixth-form candidates gained places [1/].

1/ Nguyen Trong Bao, "Les écoles secondaires d'enseignement général mi-études, mi-travail", in Recherches pédagogiques (in Vietnamese) No. 39, August 1975, Hanoi : Institut des Sciences pédagogiques, 1975, p. 5.

It should be added that, most recently, the E. J. T. S. has inaugurated a university-level agronomics course, and of the first intake of students, 59 managed to obtain their agronomist's degree [1].

The Hoa Binh E. J. T. S. formula spread rapidly throughout the mountain regions; conditions in this type of country are particularly favourable for the creation of these schools:

- there is plenty of virgin land, which teachers and pupils can clear and cultivate;
- pupils originating from minority ethnic groups are often behind in their studies, and they begin secondary, and now fifth and sixth form, studies when they are old enough to do regular productive work while studying as well.

To date, the vast national campaign, "Study and follow the example of the avant-garde schools", launched in 1970, has resulted in the founding of 20 provincial Hoa Binh E. J. T. S. -type schools. Most of these schools run classes for all three levels of the general education system, and the number of pupils per school varies between 300 and 1,000. Furthermore, 64 district-level schools for national minorities have been founded; these schools provide secondary-level education to a smaller number of pupils (between 50 and 150 pupils). Lastly, half-study/half-work schools have also been started up in certain communes, such as the one at Cam Binh (winner of the N. Krupskaya prize for literacy, awarded by Unesco, in 1978). As in the Hoa Binh E. J. T. S., the pupils of provincial half-study/half-work schools are taught the full general education curriculum, live as boarders organizing their day on the 4+4+1+3 pattern mentioned above. Most of the pupils are aged between 15 and 25.

According to a census taken at the start of the 1975/76 school year, there were altogether 36 half-study/half-work schools of the Hoa Binh type in existence throughout North Vietnam. Needless to say, although these schools are organized along the same basic lines, there are nevertheless differences between them, depending on whether they are located in mountain regions, in the plains or in towns. In the south, for the same school year, four half-study/half-work schools were inaugurated (including one in Saigon).

Most of the Hoa Binh-style schools are smaller than their model, with a narrower range of activities. With a view to achieving rapid technical and cultural progress, a new formula has been devised: the combination of a school with a state farm. One often comes across large state farms in the mountain regions, some covering several thousand hectares, growing crops on an industrial scale [2]: coffee, oranges, rubber, or livestock, heavily mechanized, with processing plants and skilled management. Experiments have been conducted to combine these state farms with schools, the state farms supplying the material and technical resources required for productive work and the specialist personnel to provide teachers and pupils with the technical and economic training they require. The activities of these state farms vary a great deal, combining industry with handicrafts and farming, which means that additional labour - which in this case means schoolchildren - can be employed without too much disruption of operating plans. The farm management consults with the school staff to draw up a programme of work and study adapted to the needs and educational level of the pupils.

The situation is a little different in the plains. The population density is far greater, and there is little fallow land; so it is difficult to find sufficient land to provide half-study/half-work schools with an autonomous production base. Unlike the mountain regions, where the education of minority populations had to start from square one, the school network already exists in the plains, not only at primary and secondary level but also, in recent years, at fifth- and sixth-form level as well, in the general education system. Prior to 1975, the principle of associating education with productive work took two main forms in practice:

- the introduction of productive work by the inclusion of one weekly session in the general timetable;

1/ Luu Huy Chiem, "L'Ecole des Jeunes Travailleurs Socialistes de Ha Son Binh (ex-Hoa Binh) en marche vers de l'avant" (in Vietnamese). Nhan dan (daily newspaper) 30 May 1977 (Hanoi).

2/ Le Duan - Pham van Dong, "Vers une agriculture de grande production socialiste. Hanoi, Ed. en langues étrangères, 1975, p. 68-69.

- the provision of additional general education courses for cadres and workers already at work.

Here, productive work occupies only a small portion of pupils' time, the major portion being devoted to theoretical study. It is only in the last few years that genuine half-study/half-work schools have been started in the plains. Two factors have stimulated their emergence:

- the promotion of the district (huyện) as the basic agro-industrial unit of the national economy;
- the growing number of young people completing their secondary studies but unable to continue their studies further.

The district is a teritorial unit comprising several rural communes, covering between 15,000 and 30,000 hectares, with a population of between 100,000 and 200,000. Formerly, the district was merely an intermediate administrative agency, situated between the province and the rural commune, without any economic competence. Current regional development policy is to "build up the district, gradually to develop its structure, as it is this echelon which is directly responsible for the management of all activities in the district, especially in the economic sphere, hence its responsibility for production, and farming in particular"[1/]

Moreover, the district is in a position to mobilize large numbers of people for major construction schemes (hydraulic works, roads, public buildings, factories). This manpower needs to be not only technically competent but also accustomed to manual labour, much of it strenuous on account of the backward condition of the rural economy. It soon became clear that conventional schools were not equipped to supply this kind of labour, either in the quantities or of the quality required.

The Phu-Tien School, in the province of Hai Hung, is typical of the half-study/half-work schools designed in answer to the needs of the countryside. It was founded in January 1976 and has 300 fifth- and sixth-form pupils. From the outset, the district allotted it 20 hectares of rice paddy and ten hectares of ponds for fish breeding. The remainder is the work of teachers and pupils: construction of a brick factory, reorganization of the fields, construction of classrooms and dormitories, manufacture of teaching aids. Certain districts are now converting conventional fifth- and sixth-form schools into E. J. T. S. - style half-study/half-work schools.

Special mention should be made of schools in towns, where attempts are being made to introduce productive work into the curriculum. Here, this type of innovation is rather belated compared with the countryside, and less systematic, for several reasons: population dispersal, the nature of industrial work, etc.

Productive work is introduced in three cases:

- in fifth- and sixth-form general-education schools, with one half-day of productive work per week;
- in certain half-study/half-work schools;
- in the framework of adult education courses designed for adults already engaged in productive activities.

The first attempt to create a fully-fledged half-study/half-work school in a town, with industrial labour replacing agricultural labour, took place at Nam Dinh, in tandem with the town's textile combine. The company supplies material and technical installations as well as materials. Its technicians and managers instruct teachers and pupils in the theory and practice of industrial work. Pupils are admitted from the lower-fifth form onwards; they spend half the day in general education, and four to five half-days in productive work associated with the factory. The one difficulty outstanding is the problem of arranging their direct participation in the regular work of the combine.

1/ Le Duan - Pham van Dong, "Vers une agriculture de grande production socialiste," op. cit., p. 84

THE NEW EDUCATIONAL REFORM: PROBLEMS AND OUTLOOK FOR HALF-STUDY/HALF-WORK SCHOOLS

The unification of the nation's education system, the still inadequate quality of education, an erroneous conception of productive manual labour, and the fact that two-thirds of pupils cannot gain admission to the fifth and sixth forms of general education: all these are problems that the new educational reform now being planned will attempt to solve.

Certain main points of the future reform are already known[1/]:

- the pursuit of socialist education along the lines already laid down by the Vietnamese Communist Party, taking as its point of departure the education system already prevailing in the North;
- takeover and complete reconversion of educational establishments in the south;
- development of nursery schools, in quantitative and qualitative terms;
- generalization of secondary education (up to 7 classes);
- construction of new fifth- and sixth-form colleges;
- development of adult education, on a new basis, especially aimed at rounding out the culture and vocational qualifications of the many workers, cadres, and peasants who already have a basic education;
- a major drive to open as many technical and vocational schools as possible in answer to the growing need for skilled workers and technicians;
- gradual generalization of the work-study system.

This last point is embodied in the decree published recently, on 21 March 1978, by the Government Council, concerning schools henceforward known as half-study/half-work secondary schools of general education. The aims of these schools are defined as follows:

- "to train young people to become workers of a new kind, inspired by a socialist ideology and morality, with a secondary-school cultural background, possessing the knowledge and the capacities required in agricultural or industrial production and in economic management, sound health and an aesthetic sense,
- to organize pupils' work with a view to producing material goods, which contributes to their education as human beings at the same time as gradually contributing to the financing of the school and to local economic and cultural development. On leaving school, pupils will adapt rapidly to productive work, where they will pursue their training to become skilled workers, technical and scientific executives or managers."

As to the curriculum in these schools, school heads are asked to "arrange the timetable along the lines of the fifth- and sixth-forms curricula in general education, making such modifications as are required by the specific objects of this type of school and the exact nature of the products turned out either by the locality or by the company with which the school is associated".

The importance of productive work is underscored by the following points:

"- productive work shall be organized in such a way as to ensure the educational and scientific character of the activities engaged in, in a manner compatible with the requirements of socialist mass production,
- each week, under the supervision of teachers or technical executives, pupils shall take part in five to six work sessions, lasting 3 to 4 hours each,
- to strike a reasonable balance between study, work, amusement and rest for the pupils. To set aside sufficient time for artistic activities, sport and community life."

The decree provides for fairly flexible arrangements regarding the setting-up of these schools; essentially, these fall into two categories:

1/ Mme Nguyen Thi Binh (Minister of Education), "Rénover rapidement l'école pour avancer au rythme de la nouvelle étape révolutionnaire", in Courrier du Viêt-Nam, No. 53, Octobre 1976. Cf. also Mme Nguyen Thi Binh, "Vers la réalisation de la réforme de l'enseignement général", in Revue communiste, No. 74, Juillet 1978, p. 14-20.

- twinning with a company, which supplies materials, equipment and technical training. The school is responsible for organizing and supervising pupils' work; the job of providing school buildings falls to the local authorities,
- schools having their own autonomous production base. These shall be regarded as local economic units, receiving local authority grants to build their own material and technical base and school buildings. Their productive activity shall be integrated into the overall plan of the territory to which each school is attached: district, new economic zone, or the autononomous territory of one or more specified ethnic groups.

Pupils are recruited from anong those having completed their secondary education, and their upper age-limit is three years above the regulation age-limit for admission to the general-education fifth form. In mountain regions, or in certain zones in the South, it is possible to set up half-study/half-work schools of secondary level for young montagnards or cadres who have fallen behind in their studies on account of the war. Lastly, pupils who have completed secondary-level half-study/half-work schools (three levels) are eligible to compete for admission either to higher education or to secondary technical colleges.

The government decree also lays down the legal status of these schools:

"Half-study/half-work schools are regarded as legal entities from an economic standpoint, and may therefore open bank accounts, borrow from banks, sign financial contracts .... Products must be sold to the state and shall be exempted from all taxes. Revenues, after deduction of depreciation and write-off costs and production costs, shall be employed firstly in the upkeep of pupils, to serve as production incentives, and partly (around 20 per cent) to be paid into a reserve fund with a view to expanding production."

During the first year, the school receives state subsidies to pay for the upkeep and education of pupils; these subsidies deline as production rises, and by the end of the third year, teachers and pupils are expected to be able to pay their way. They are also expected to be able to provide food and lodging, on a boarding basis, and productive work, for all the pupils.

In addition to the teaching staff, half-study/half-work schools will also employ a staff of technicians, workers and managers; teachers and cadres involved in teaching or supervising production activities will enjoy the same material and moral benefits as those enjoyed by all other workers in the occupation concerned.

"The school should act as an important link whose rôle is to participate in the triple revolution that is currently changing Vietnamese society: the revolution in relations of production, the scientific and technical revolution, and the ideological and cultural revolution" [1/]. These are the terms in which the authorities have defined the rôle and place of the school in the process of transformation of the country. It is obvious that traditional-type schools are no longer suited to this rôle, hence their gradual replacement by the half-study/half-work system. As we have seen above, the latter is capable of contributing to solutions to a whole series of vital problems:

- for a country like Vietnam, just emerging from war and directly embarked on the road to socialism, what kind of school will best answer the specific needs of the country and be best-suited to the present level of development? It has to be admitted that no immediate answer was found to this question, and that, on the contrary, it took a long time before it was realized that the half-study/half-work pattern was indeed the best-suited to the purpose. Even so, it is not enough for the Ministry to decide for the entire population to follow suit: information and explanation campaigns proved more than necessary to dispel ancient doubts rooted in the mentalities of parents.

- At present, only 30 per cent of all secondary pupils gain admission to the fifth and sixth forms in existing conventional schools: so, what is to be done with the remaining two-thirds, bearing in mind that the educational level normally required of cadres and managers in co-operatives and other administrative bodies needs to be superior to the fourth form? This is not to say that people leaving school at fourteen or fifteen represent a negligible labour force in any productive activity.

[1/] Mme Nguyen Thi Binh, "Rénover rapidement l'école ...", op. cit., p. 157

The need for scientific knowledge and for additional labour, these are the two basic factors that need to be taken into account by any school, whatever the formula being proposed.

- The school, considered as an economic and cultural entity, must be self-financing, so as to be independent of state funding, at least in the long term. As has been seen, the half-study/half-work school is capable of supporting itself through the sale of products manufactured by itself, although certain conditions have to be fulfilled: conclusion of a contract, quality of products manufactured, rational basis of production plan, reasonable allocation of time between study and work, etc.

- What type of man is it intended to train? The answer to this question lies in the characteristics and demands of each society. In Vietnam, this new socialist type of man has a well-defined content, but above all he is a new kind of worker, worthy and responsible vis-à-vis his work, be it intellectual or manual. Ideologically speaking, the half-study/half-work school finds its justification in the light of this objective.

- Vietnam is an essentially agricultural country, and the paramount object of any development policy must be the development of agriculture. This must serve as the basis for the country's industrialization. The 4th Congress of the Communist Party of Vietnam, held recently, once again reiterated the intended rôle of agriculture in the country's development: "It is necessary to concentrate to the utmost the vital forces of the country, its different branches and at all echelons, on agriculture, to enable it to take a great leap forward" [1]. Consequently, the prime objective of educational policy also must be to raise the technical and cultural level of the peasant masses as quickly as possible. In addition, it is important that on leaving school, on completing their studies, pupils return to their co-operatives and their villages. As we have seen, the half-study/half-work schools do satisfy this criterion, and that very often their former pupils have shown themselves to be avant-garde elements in the socio-cultural transformation of the countryside.

The Vietnamese experience has shown that many problems have to be resolved in applying the principle of the association of productive work with study: problems of an ideological order, the creation of the material and technical bases, integration into existing socio-economic structures, as well as pedagogic problems.

Firstly, in the face of centuries-old tradition deeply rooted in the minds of young people, parents and teachers, resulting from Confucianism, which set up scholarly work in opposition to productive work, it is essential to assert and reassert the need to train a new type of man in answer to the needs of the new society now emerging. But the authorities too must have the political will to affirm this necessity, and further support is needed for the half-study/half-work schools, for their pupils and their teachers.

The problem of the creation of the material and technical bases takes different forms depending on the location and degree of economic development (mountain, plain, town, etc.). When land is available, the school can become a self-supporting economic unit; however, the productive work done by teachers and pupils rarely rises above the handicraft stage or small-scale farm production. In the plains and in the towns, on the other hand, the problem is more one of integration into the existing economic structures: co-operative farms, state farms, factories, construction sites. This is certainly the trend of the future, since not only does the setting-up of a modern agriculture or industrial complex exceed the capacities of teachers and pupils in the general education system, but also the assistance which the production complex in question can give is undoubtedly of priceless value to the school.

Lastly, it remains to be said that in the future, the planning of curricula for half-work/half-study schools will be founded upon a new conception of study, in which productive work necessarily forms an integral part of pupil training.

[1] Resolution of the 4th Congress of the Communist Party of Vietnam, Hanoi, Ed. Su That, 1977, p. 32 (in Vietnamese).

Appendix 1. Progress Report: "25 years of education in the Socialist Republic of Vietnam" (North Vietnam)

	1945-1946	1960-1961	1969-1970
Pre-school nursery schools			
- classes		27 368	54 971
- pupils		824 575	1 771 966
- teachers		29 461	54 566
General education			
- Schools	3 839	7 057	11 563
Primary		6 101	7 204
Secondary		904	4 122
Fifth and Sixth Form		62	377
- Pupils	190 061	1 900 870	4 523 000
Primary		1 631 721	3 159 000
Secondary		243 047	1 208 000
Fifth and Sixth Form		26 102	156 000
- Teachers	5 583	44 405	137 400
Primary	5 316	36 802	80 330
Secondary	267	6 526	43 460
Fifth and Sixth Form		1 077	7 680
Adult education			
- Students	2 000 000	1 780 615	894 113
Education for ethnic minorities			
- Pupils		147 675	357 011
Primary		134 002	289 710
Secondary		13 070	60 646
Fifth and Sixth form		603	6 655
- Teachers		2 933	10 266
Primary		2 798	8 852
Secondary		122	1 264
Fifth and Sixth Form		13	150
Number of female teachers in general education		5 451	55 623
Primary		4 616	39 595
Secondary		729	14 680
Fifth and Sixth Form		106	1 348

Appendix 2. Allocation of time between study and work at the Hoa Binh E. J. T. S.

Phase	Training	Study programme	Work	Timetable
1958-61	Youth cadres	Complementary reformed primary curriculum	Construction of roads and dams	Study : noon and evening Work : morning and afternoon
1962-63	Co-operative cadres and peasants (technical and management training)	Complementary reformed primary and secondary curricula	- Land clearance - Manioc, sweet potato and tung growing - Breeding oxen and pigs	Phase 1 : Study : noon and evening Work : morning and afternoon Phase 2 : Study : half-day Work : half-day Personal study : evening
1964-69	Technical managerial and organization cadres Fifth- and sixth-form pupils Students	Complementary reformed primary and secondary curricula General fifth- and sixth-form curriculum	- Animal husbandry and crop growing - Processing industries	Study : half-day Work : half-day

An analysis of the changing disparities in female access to education and employment in Iran

during the intercensal period 1966-76

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I. INTRODUCTION

In recent years, and particularly since the oil price increases beginning in 1973, Iran has undergone a period of very rapid socio-economic growth. The economy has expanded and diversified, while educational and other social expenditures have also increased substantially. But this has not been a smooth process. Many internal imbalances and shortages have revealed themselves, and have inhibited the extent of the growth which could be achieved with the greatly increased resources at Iran's disposal. In particular, shortages of many types of skills have slowed the implementation of development projects and the speed of industrial expansion, and the resultant wages explosion has been a factor in the inflation from which Iran has suffered recently. Rising urban wages have also been a stimulus to the migration of unskilled male workers from the rural areas, in turn limiting the expansion of agricultural production.

Throughout this period, the Iranian authorities have repeatedly restated their commitment to the goal of increased female particiption in the country's socio-economic development. But the majority of women are still not economically active. The goal of the Fifth Plan, which was due to be completed in 1978, was to raise the female activity rate to some 15 per cent [1/]. Thus, ignoring for the moment such broader issues as women's rights to social justice and economic independence, the relative dearth of economically active women in the Iranian economy can be seen as an important factor contributing to labour scarcity, and in turn a restraint on realization of the national potential for development.

Traditionally, women and girls have played little part in the workings of Iranian society outside the home, though their influence there may have been strong. Religious and social traditions and even certain economic and political considerations all favoured a pattern of early marriage and child-bearing for girls. A doctrine of the Shi'ite sect of Islam, which is dominant in Iran, says that "God will bless the man who gets his daughter married before the age of puberty" [2/]. Similarly there exists the Shi'ite institution of mut'a (temporary marriage), a device to circumvent childlessness in a first marriage [3/], which is still to be found among traditionally-oriented people. Families favoured early marriage of their daughters for several reasons, e. g. as a means of safeguarding their chastity, as a way of obtaining relief from the expenses of support, and as a means of access to bride-wealth [4/]. The possibility of their children's advance to a higher economic status was one of the few avenues of escape from poverty for adults in earlier traditional society, and hence an incentive to poor people to have many children quickly, particularly with the then higher rates of infant mortality.

1/ Iran, Plan and Budget Organization. Iran's Fifth Development Plan, 1973-78, Revised - A Summary, Teheran, January 1974, p. 17.

2/ Quoted by Katherine F. Darabi in "Education and Fertility in Iran" Community Development Journal Vol. II, No. 2 (1976), p. 147.

3/ A. Reza Arasteh, Education and Social Awakening in Iran, 1850-1968 Leiden, 1969, p. 174.

4/ Darabi, Op. cit. pp. 146-7.

Iran may now be characterized as a society undergoing rapid but uneven change. The advancement of women into a more active social and economic rôle is in progress, though currently being questioned by some groups in society. This is much more evident in the urban areas, where female enrolments in all levels of education have shown rapid recent increases, and female employment in a range of occupations is significant. The rural areas remain much more backward in all these respects.

This paper will examine the progress in reducing disparities in female access to education and employment, principally through comparison of the findings of the 1966 and 1976 censuses. From the results of this examination, an attempt will be made to identify the determinant factors behind the revealed disparities, and the nature of these factors' influence. Finally, suggestions will be made as to additional desirable policy measures for the further reduction of female disparities.

A number of assumptions and hypotheses lie behind the examination of the data to be undertaken, and one concern of the paper will be to see whether or not they can be verified. These assumptions and hypotheses may be listed as follows:

(i) While increased female access to education and employment are desirable from several points of view, they may sometimes occur at the cost of increases in male unemployment, (ii) Inequality in female access to education is principally a function of the urban/rural dichotomy at the primary level, and of the availability of facilities at the secondary level and above, (iii) A significant proportion of educated females still do not enter the labour force, (iv) Marital status, and the number and ages of children, influence female access to employment, (v) Unskilled female employment is principally in rural areas, while skilled jobs for females are concentrated in urban areas, (vi) Better-educated employed females work predominantly in the public sector, (vii) In urban areas, and particularly in Tehran, economic necessity is overcoming social resistance to wives working, (viii) Occupations involving extensive contact with the public are less accessible to females, especially in the private sector, (ix) Carpet production remains an important but declining source of female employment in rural areas.

As a general framework for the rest of the paper, Table 1 shows the growth of the Iranian population during the 1966-76 period, as recorded by the 1966 census results and the 5 per cent sample from the 1976 census results. Total population increased by just over a third during the ten-year period, the under-15 age-group amounting to almost 45 per cent of the total in 1976. The most notable change in the basic characteristics of the population was the shift from rural to urban areas. In 1966 39 per cent of the population was classed as urban (in administrative centres or concentrations of over 5,000 people), and this percentage rose to almost 47 per cent by 1976. This growth was due partly to rural-urban migration, but also to former rural areas expanding sufficiently during the intercensal period to be considered as urban in 1976.

The male-female distribution of the population changed only slightly, as the female percentage rose from 48.24 in 1966 to 48.5 in 1976. However this relationship has varied between rural and urban areas. Thus, 49.26 per cent of the total rural population were female in 1976, but only 47.63 per cent of the total urban population were female in that year. In 1966 the female proportion was 47.96 per cent of the urban population, and 48.41 per cent of the rural population.

That these figures imply the greater movement of males from rural to urban areas can be seen by examining the rural/urban ratios of different age-groups in Table 1. In 1976 urban males exceeded rural males in all the age-groups from 15 to 39 years, while for females a small majority of the 20-24 age-group were in urban areas, and there was virtual urban-rural parity in the 15-19 and 25-29 age-groups. By comparison in 1966 the only age-group of either sex with an urban majority was the males aged 20-24.

These findings suggest that there has been a substantial rural-urban migration by males, but also a more limited movement by females. However the dominant pattern is one of females being left behind in the rural areas with their children, while their menfolk move to urban areas in search of more lucrative employment. This is borne out by the 1976 excess of females over males in rural areas in all the age-groups from 15 to 39, while in urban areas males were in excess in all age-groups. In 1966 the excess of females was found only in the rural age-groups from 15 to 29.

Table 1. Population growth in Iran, by sex, age groups, and rural-urban distribution (thousands)

	1966				1976				
1966	Males		Females		Males		Females		1976
Age groups	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	age groups.
					1 694	1 158	1 542	1 050	0-4 years
					1 576	1 140	1 457	1 078	5-9 years
0-4 years	1 515	792	1 371	758	1 155	1 104	1 069	971	10-14 years
5-9 years	1 361	766	1 248	730	797	1 024	893	893	15-19 years
10-14 years	928	665	819	603	559	795	715	737	20-24 years
15-19 years	569	490	611	457	444	565	550	546	25-29 years
20-24 years	388	404	521	368	382	453	444	421	30-34 years
25-29 years	465	336	523	324	404	418	425	375	35-39 years
30-34 years	527	335	501	302	479	415	423	349	40-44 years
35-39 years	470	293	391	259	414	338	343	292	45-49 years
40-44 years	458	279	364	218	408	319	328	268	50-54 years
45-49 years	286	192	217	146	213	184	159	149	55-59 years
50-54 years	225	145	215	154	169	133	151	126	60-64 years
55-59 years	140	82	120	84	363	262	295	263	65 years & over
60-64 years	213	130	201	124	-	-	-	-	
65 years & over	334	180	289	163	-	-	-	-	
Total	7 885	5 096	7 399	4 697	9 064	8 272	8 800	7 524	

Note: Totals may not tally exactly, because of rounding of the figures.

Sources: 1966. Iran, National Census of Population and Housing, November 1966
Vol. No. CLXIX "Total Country - Settled Population" March 1968. Table 1.
1976. Iran, National Census of Population and Housing, November 1976.
"5% Sample of Total Country" no date. Table 1.

Note: Unless otherwise indicated all other tabulations in this study are derived from the tables in these two volumes.

Since, as will be seen later in the paper, female access to education and employment are much more concentrated in urban areas, the implication of the growing predominance of females in rural areas is that in this respect their chances of access to education and employment have worsened, despite all the efforts on their behalf.

II. THE GROWTH OF FEMALE PARTICIPATION IN EDUCATION

Modern education developed comparatively late in Iran, and the spread of educational facilities throughout the country is a recent phenomenon, though even now the rural areas are relatively less well endowed.

(a) Literacy

A basic measurement of the stock of education in a population is adult literacy rates, and these are shown in summary form in Table 2, which is derived from the more detailed Table in the Appendix (Table A).

Table 2. Literacy rates, population aged 10 and over (percentages)

	1966	1976
All females	16.71	31.26
Urban F.	36.98	51.75
Rural F.	3.38	12.30
All males	39.94	55.76
Urban M.	62.15	73.19
Rural M.	24.11	37.69

The growth of literacy has been faster among women than among men in both urban and rural areas, though this is partly a reflection of the very low female literacy rate in rural areas in 1966. However, in terms of the numbers of literates, women are still well behind men in both urban and rural areas (see Table A).

But though the growth of literacy has been substantial, it has not kept pace with the absolute growth of the population, so that there has at the same time been an increase in the number of illiterates during the period.

As can be seen from Table 3, the increase in the number of illiterate women has been considerably greater than the increase in the number of illiterate men. It is only among rural men that the number of illiterates shows a decline, and this is due mainly to the migration of young illiterate men to urban areas in search of jobs, and only partly to the increase of literacy among rural men and the decline in the number of localities classed as rural. The figures in Table 3 suggest that a similar pattern of influences operated in the case of female illiteracy, though to a lesser degree, since there was a faster growth of female illiteracy in urban areas.

Table 3. Illiteracy, population aged 10 and over (thousands)

	1966	1976
All females	6 498	7 609
Urban F.	1 951	2 568
Rural F.	4 547	5 041
All males	4 987	5 134
Urban M.	1 307	1 584
Rural M.	3 680	3 550

(b) Educational attainments

The stock of education among females who have left school is shown in Table B of the Appendix. [1/] The most notable feature is the extreme contrast between the rural and urban areas. In 1976 there were only some 30,000 women in the rural areas with more than a completed primary education, whereas in the urban areas there were over 500,000 women who had surpassed the primary level. Nevertheless, this represents a relative rural improvement over the 1966 situation, when the equivalent figures were 10,000 in the rural areas and nearly 300,000 in the urban areas.

[1/] This Table should be accepted with some caution, since some of the data appear dubious, e.g. the 30-34-year cohort in 1966 increases by over 2,000 in becoming the 40-44-year cohort in 1976. Were mature women entering the education system in the intervening period? If not, a decline in the size of the cohort due to natural causes would be expected.

The stock of education among women has also been growing, relative to the growth of that among men. Thus in 1966 the number of men with more than a completed primary education was under 100,000 in the rural areas and some 700,000 in the urban areas, whereas by 1976 these figures had grown to some 150,000 in rural areas and about one million in urban areas.

As might be expected, given the relatively recent expansion of education, the younger age-groups in the female population contain a disproportionate number of those with educational qualifications. Thus in 1976 the 20-24 age-group contained far more educated females than all the age-groups over 35 added together. This was true in both rural and urban areas, and for all levels of education except the first three years of primary in the urban areas, since most urban girls are now educated beyond this level.

But it remains true to say that, even now, girls in the rural areas have very limited opportunities of entering education or training beyond the primary-school level unless they are prepared to move to an urban area. As will be seen in the following discussion of the current educational situation, there are very few educational institutions beyond the primary level situated in rural areas.

(c) Educational enrolments

There is no question that Iran has made a major effort at educational expansion in recent years, and this in all types and levels of education. In order to show these trends of expansion while keeping the data within manageable limits, Table C of the Appendix shows enrolments in alternate years since 1966, for boys and girls separately and also for rural and urban institutions where appropriate.

Lack of published information about over-age enrolments, repeaters, and drop-outs makes it difficult to have a precise picture of the progress in achieving universal primary education. But comparison of the data from the censuses on school attendance by age (Table 4) suggests that considerable progress has been made over the intercensal period, though less in the case of rural girls.

A phenomenon common to both boys and girls, urban and rural, is the under-enrolment of six-year olds, implying that a significant proportion of older pupils are over-age for the grades they occupy. But apart from this it is clear from Table 4 that primary education for urban males is almost universal, and reaches perhaps 90 per cent of urban females. The enrolment of rural males may be of the order of 75-80 per cent, but for rural females a rate of 40-45 per cent would appear approximately correct.

Table 4. School attendance by age (thousands)

Age	Rural				Urban			
	Male		Female		Male		Female	
1976	Enrolled	Not Enrolled	Enrolled	Not Enrolled	Enrolled	Not Enrolled	Enrolled	Not Enrolled
6 years	190	143	102	200	164	59	143	68
7 years	250	82	136	167	213	13	197	25
8 years	239	60	133	150	220	8	192	21
9 years	211	44	110	128	206	6	181	18
10 years	208	57	100	148	220	9	188	23
1966								
7 years	113	173	33	225	128	37	102	53
8 years	121	143	32	210	124	19	101	36
9 years	106	97	28	162	112	14	94	31
10 years	112	119	25	181	121	18	94	28

Sources: 1976 Census, Table 13. 1966 Census, Table 8.

Note: In 1966 no separate figures for six-year-olds were shown.

This lag in the entry of rural girls into primary education may still in certain instances be accounted for by the lack of local educational facilities, but a more frequent cause is the reluctance of parents to send their daughters to schools operating with mixed classes and multiple ages, and taught by male teachers. Although, as will be seen later in the discussion of female employment, the use of female primary teachers has expanded rapidly, these teachers are found mainly in urban schools. Also, the wives of men who have migrated to cities to work are more likely to keep their daughters at home to help with household work, or at least withdraw them from school after one or two years for this reason.

Beyond the primary level the Iranian educational system is relatively less well developed. Moreover, the absolute gap between male and female enrolments becomes progressively wider at successive levels, as does the gap between urban and rural enrolments. These generalisations are clearly visible from the data in Table C of the Appendix.

Table 5 shows that over the decade 1966-76 there has been some progress in reducing these disparities. Although in terms of absolute numbers the differences between male and female and urban and rural enrolments were much larger in 1976 than in 1966, it is also true to say that female enrolments have been growing at a faster rate than male enrolments, and rural enrolments at a faster rate than urban enrolmens. It is in this sense that disparities may be said to have been reduced. Thus while rural females remain by far the most under-represented group in guidance and secondary education, some progress has been made in remedying this situation. But vocational, technical and higher education are still situated almost wholly in the urban areas. The distance there is still to go on bringing girls into the post-primary educational system can be seen from Table 6.

Table 5. Growth of educational enrolments (thousands)

	Guidance and secondary education				Vocational and technical Education		Higher Education	
	Male		Female		Male	Female	Male	Female
	Urban	Rural	Urban	Rural				
1966	343	51	179	6	13	3	28	9
1976	1 167	344	797	91	112	48	107	49

Source: Appendix, Table C.

Table 6. Female school attendance by age in 1976 (thousands)

	Rural		Urban	
Age	Enrolled	Not enrolled	Enrolled	Not enrolled
11	75	120	162	23
12	63	148	161	35
13	44	145	148	40
14	32	158	134	49
15	22	182	117	67
16	13	159	101	78
17	8	155	82	91

Source: 1976 Census, Table 13.

Table 6 brings out clearly the extent of the difference between urban and rural female access to post-primary education. Except for some guidance schools, scarcely any post-primary institutions for females are located in the rural areas. While it may be queried whether an extension of the general-secondary type of education would be the most suitable for rural girls, it is clear that no special provision has so far been undertaken to meet their particular needs at the post-primary level.

A further disparity in female access lies within the area of vocational and technical education. Table 7 shows enrolments in various types of institutions in 1974/75, the last year for which such data were available.

Table 7. Enrolments in vocational and technical education by sex, 1974/75.

Type of education	Male	Female
Industrial technical education	73 986	1 840
Rural technical and vocational education	11 736	250
Services technical education	18 575	24 364
Special vocational courses	2 535	159
Technological institutes and the school for training school health workers	10 286	2 798

Source: Iran, Ministry of Education. Educational Statistics 1976 Tehran 1976. Table 4C.

Vocational and technical training for females in thus heavily oriented towards the "traditional" female occupations. The virtual absence of females from rural education is particularly striking. A direct comparison with the 1966 situation is not possible, because of intervening changes in the institutional structure of vocational and technical education. But at the earlier date the few girls enrolled (see Table C) were restricted to secretarial and nurse-aide training, and courses such as beauty treatment, hairdressing, and dressmaking. The 1974 situation represents at best only a slight advance.

It may be noted from Table C in the appendix that the only area of education in which female enrolments outnumbered male enrolments is teacher/training, which in fact refers only to training of teachers for kindergartens, primary, and guidance schools. In 1974/75 the 4,430 trainee kindergarten teachers were all female, and females were in the majority among trainee primary teachers, while males predominated among the guidance-cycle trainees. Lest this be thought to be clear evidence of feminine progress in the educational system, it should be noted that in 1966 there were scarcely any male primary teacher/training students, and neither kindergarten nor guidance teacher/training existed. Thus it would be closer to the truth to say that while increasing numbers of women are being trained as teachers for the lower levels of the education system, an even more rapid increase of male teacher trainees has occurred, particularly with reference to the guidance cycle.

At the higher level of education there has been a more complex evolution of male and female enrolments. Moreover, the following discussion relates only to those enrolled in higher education in Iran, and takes no account of the substantial numbers of Iranians who have gone abroad for their higher studies, about whom there is no comprehensive information available. Thus it is of necessity only a partial evaluation of the position of Iranian females vis-à-vis access to higher education.

Table 8 shows the changes in enrolments in urban higher education by subject areas over the 10-year intercensal period. In all fields female enrolments expanded faster than male enrolments over the period, but only in medicine, humanities and education did females exceed males by 1976, and then only by small margins. But the structure of enrolments varied considerably between the two sexes in 1976. Among male students, 30 per cent were enrolled in engineering, 18 per cent in the natural sciences and mathematics, and 18 per cent in the social sciences. Among female students

Table 8. Population in urban institutions of higher education by field of study.

Field of Study	Males 1966	Males 1967	Males Growth of enrol. by 1976 (1966=100)	Females 1966	Females 1976	Females Growth of enrol. by 1976 (1966=100)
Medicine	6 569	9 253	141	2 347	10 434	445
Law	1 232	2 075	168	254	871	343
Social sciences	4 614	18 635	404	959	9 042	943
Humanities	2 966	11 045	372	2 109	11 126	528
Education	278	2 617	941	143	3 036	2 123
Natural Science/ mathematics	2 334	18 635	798	519	7 525	1 450
Agriculture	1 202	5 422	451	73	1 263	1 730
Engineering	4 896	31 239	638	224	3 421	1 527
Fine arts	926	3 327	359	257	1 611	627
Others	1 152	1 236	107	183	499	273
Total	26 169	103 484	395	7 068	48 828	691

Sources: 1966 Census, Table 11. 1976 Census, Table 15.

Note: In 1976 there were approximately 3,400 males and 500 females enrolled in rural institutions of higher education, which are excluded here. In 1966 the corresponding figures were much smaller.

23 per cent were enrolled in the humanities, 21 per cent in medicine, and 19 per cent in social sciences. As a broad generalisation it may be said that female students lean more towards the arts subjects, while males are found more in scientific fields. But an obvious exception to this statement is the larger proportion of females studying medicine. Education was the fastest-growing field of study for both sexes, though the numbers involved are small. Otherwise male enrolments grew fastest in predominantly masculine fields such as natural sciences and engineering, whereas female enrolments grew most rapidly in fields such as agriculture and engineering, where they were previously little-represented. Another point of contrast, which is not shown in Table 8, is that 13.2 per cent of male students were studying for higher degrees, whereas only 7.5 per cent of females were, and then only in a limited number of fields.

From the foregoing remarks it is clear that the disparity in female access to higher education has been significantly reduced, though the pattern of change is complex. In any case it must not be forgotten that until very recently it is only the more sophisticated urban elites that have gained access to higher education, so that it may be more difficult in the future to generalise from the experience of this group to the rest of the population.

(d) Conclusions

From the foregoing analysis of the stock of education among females who have left school, and of the current pattern of female enrolments, it is clear that education has become more accessible to the female population, but also it is clear that "some are more equal than others". The most evident adverse disparity in access to education is that suffered by rural females, who have virtually no educational facilities available to them beyond the primary level. Urban females are relatively better provided for, but beyond the primary level they too suffer by comparison with males. In this context it may be noted that while the sexes normally study together at the primary level, most

post-primary education is segregated, except at the university level. Thus unless mixed post-primary education should be introduced there is clearly a need to expand the number of institutions for females. Also a higher priority would need to be given to the training of more female teachers for such institutions [1/].

There is only a small group of females, broadly drawn from the urban élites, which achieves equality of access with males by finishing general-secondary education and entering university. Otherwise to varying degrees the female population has less access to education than its male counterparts. In the urban areas this is in the process of changing as the rapid expansion of female primary enrolments is now moving up the system to be reflected in expansion at the guidance level, but rural females are still far behind. Moreover the limited facilities for adult education in rural areas, particularly for females (see Appendix Table C), means that the group of adult rural females is essentially cut off from access to education.

III. THE DEVELOPMENT OF FEMALE EMPLOYMENT

(a) Economic activity among females

During the decade 1966-67 the economically active female population rose from approximately 1,000,000 to 1,450,000, which represented an increase in the activity rate from 12.5 per cent to 13 per cent. By comparison the number of economically active males rose during the same period from 6.5 million to 8.3 million, but this involved a decline in the activity rate from 77 per cent to 70 per cent, reflecting the rapid spread of education among males. (In fact this tendency was also reflected among urban females, where the activity rate fell from 9.9 per cent to 9.0 per cent, but this was more than outweighed in the overall figure by the increase from 14.2 per cent to 16.6 per cent among rural females, where education expanded less). Greater detail concerning the economically active and inactive populations is given in Tables D and E of the Appendix, for 1966 and 1976 respectively, where breakdowns by sex, age, and rural/urban location are shown.

The rise in female economic activity has taken place particularly among the younger age-groups, i.e. below the age of 30. This trend is marked in both rural and urban areas. Conversely, far greater numbers are enrolled as students in urban areas than in rural areas. But the greatest proportion of females are classified as home-makers. This is true for all age-groups in the rural areas and from the age of 20 upwards in urban areas, as the number of female students declines rapidly. It is still the case that the majority of girls in Iran stay at home, married or unmarried, at least after leaving school if they have ever been enrolled. In this context it is worth noting that, although there is some evidence that the age at marriage is increasing, by the age of 25 some 80 per cent of women are married, the proportion being higher in rural areas than in urban areas. [2/] Home life, marriage and child-bearing remain by far the commonest life-pattern for Iranian women, and alteration of this pattern is only beginning. Apart from the expansion of education among females, there is also an increase in employment, though as will be seen below the two phenomena are not entirely related to each other.

1/ The employment of female teachers is discussed in the next section, dealing with female access to employment.

2/ 1976 Census, Table 7.

(b) Employment and unemployment

The growth of employment and unemployment are summarized in Table 9.

Table 9. Employment and unemployment (thousands)

	Rural		Urban	
	Employed	Unemployed	Employed	Unemployed
Females				
1966	602	78	307	11
1976	746	217	457	29
Males				
1966	3 639	485	2 296	142
1976	3 931	527	3 639	157

Sources : 1966 Census, table 12
1976 Census, table 16

It may be noted that both the 1966 and the 1976 censuses took place in November, during the slack season in most types of agriculture. Hence the majority of those recorded as unemployed in 1976 in rural areas were seasonally unemployed agricultural workers, the only other significant category being new entrants to the labour force seeking their first employment. The new entrants were the dominant category in urban areas. A broadly similar situation prevailed in 1966, though less strongly in urban areas. 1/

Female employment increased by roughly the same amount, some 150,000, in both rural and urban areas between 1966 and 1976. But in addition rural female unemployment also grew by some 150,000 during the period, as compared with a growth of less than 20,000 for urban females. The implication is that during a period when the urban female population increased twice as much as the rural female population (see Table 1), the economically active female population grew nearly twice as much in the rural areas as in the urban areas. Moreover, the stock of females with post-primary educational experience in the non-student female population, which is almost wholly located in the urban areas, increased by nearly 250,000 during the period. 2/

These conclusions suggest at first sight that there has been no straightforward linkage between the growth of female education and the growth of female labour-force participation, since the main increase in participation has been in the rural areas where educational advance has been less, and minimal beyond the primary level.

Furthermore, there has been a significant proportion of post-primary-educated females who did not enter the urban labour force. This may be seen as follows. The stock of non-student urban females with post-primary education increased by some 240,000 during the 1966-76 period. Urban female employment and unemployment increased by some 170,000 during the same period. If we assume an annual wastage of 3 per cent from the urban female labour force, then a further some 120,000 new entrants would have been required for replacement purposes over the 10-year period. Only if we assume that almost all the new positions and replacements were filled by females with post-primary education, which on the face of it seems unlikely, is it reasonable to say that few post-primary-educated females failed to enter the labour force. In fact almost half of the 1976 urban female labour force had primary education or less (one third of urban female workers were illiterate) 3/, so that there must have been a substantial non-participation of post-primary educated urban females in the labour force.

1/ See 1966 Census, Table 29, and 1976 Census, Table 31

2/ See 1966 Census, Table 7 and 1976 Census, Table 10.

3/ 1976 Census, Table 19

In short, a large number of uneducated or less-educated females entered the labour force, while a significant number of the better-educated did not enter it. Perhaps this last point reflects the opinion expressed by an Iranian observer: "Where a man acquires an education to succeed, a woman frequently acquires an education just in case she doesn't have a husband to support her." 1/

By contrast, male employment and unemployment appeared to follow a more predictable course during the intercensal period. Employment increased substantially in urban areas, and to a lesser extent in rural areas, while the unemployment rate fell significantly in urban areas and remained static in rural areas. This paralleled the growing urbanisation and increased stock of post-primary education in the male labour force.

(c) Changes in the age pattern of female employment

The changing age structure of female employment is shown in Table 10.

Table 10. Female employment by age (thousands)

1966 age groups	1966 Urban	1966 Rural	1976 Urban	1976 Rural	1976 age groups
			33	155	10-14 years
			60	171	15-19 years
10-14 years	51	127	107	114	20-24 years
15-19 years	41	107	85	70	25-29 years
20-24 years	41	73	51	50	30-34 years
25-29 years	33	66	34	46	35-39 years
30-34 years	29	60	25	42	40-44 years
35-39 years	25	47	19	33	45-49 years
40-44 years	24	42	17	29	50-54 years
45-49 years	15	24	7	11	55-59 years

Sources: 1966 Census Table 12
1976 Census Table 16

In 1966 the age-structure of female employment was simple. The number employed declined with age, and for all age-groups was substantially larger in rural than in urban areas. By 1976 the structure had become more complex. The influence of increasing female educational enrolments meant that the peak of employment was reached in the 15-19 age-group in rural areas, but in the 20-24 age-group in urban areas, where post-primary educational facilities have so far been concentrated. The relation between numbers employed in rural and urban areas also varied with age, being higher in the rural areas in the younger age-groups, and also in the oldest age-groups, but higher in urban areas in the 25-34 age-range. While the higher rate of divorce among urban women, leading to a greater likelihood of return to employment, may be a factor here, a more important influence is probably the higher age of marriage and slightly greater likelihood of never marrying among urban women. Another difference between employment patterns in rural and urban areas is that while urban employment increased somewhat during the decade in all the under-40 age-groups except the youngest, rural employment increased substantially only in the three youngest age-groups, up to 25, while over the 25-45 age-range the increases were only small.

1/ S. Farman-Farmaian "Women and decision-making : with special reference to Iran and other developing countries" Labour and Society Vol. 1, No. 2, April 1976, p. 27.

Tentatively, it may be suggested that lack of educational facilities in rural areas was the important factor in this pattern. The availability of education in urban areas limited the growth of female entry into the labour force in the youngest groups, while stimulating employment among the 25-34 group. Conversely, the comparative lack of rural education led many young rural females to enter the labour market, though they frequently occupied only a marginal position in it, being seasonally unemployed or permanently underemployed. Among the older rural age-groups the continuing existence of onerous family responsibilities limited increased access to employment. These points will be enlarged on below.

(d) The employment status of employed females

The employment status of female workers is shown in Table 11.

Table 11. Employment status of female workers (thousands)

	Family worker	Private sector wage-earner	Public sector wage-earner	Own-account worker	Employer
1966					
Rural	186	246	3	158	2
Urban	24	182	53	39	3
1976					
Rural	424	190	23	100	3
Urban	5	133	224	43	2

Sources: 1966 Census, Table 15
1976 Census, Table 17

It is suspected that the figures in Table 11 for rural workers are misleading in that, although the definitions used in the census have not changed from 1966 to 1976, their interpretation has probably been altered. Otherwise it is difficult to explain the apparent large increase in family workers accompanied by significant declines in the numbers of own-account workers and private-sector wage-earners. Assuming that the 1976 figures give a truer representation of the structure of rural female employment, then for the above three categories together there was a growth of employment of 21 per cent over the period, though in addition to this the substantial seasonal unemployment recorded among rural females in 1976 should also be borne in mind. Among urban female workers the most important change was the growth of public-sector wage-earners accompanied by a decline of private-sector wage-earners. In 1976 the public sector specifically included the parastatal organisations and all companies with more than 50 per cent government investment, which was not the case in 1966. Since this type of enterprise has expanded rapidly in recent years, apart from the direct growth in government employment, it is thought the apparent fall in private-sector wage-earners may well mask a certain increase heavily outweighed by such transfers to the public sector. [1/] Then the growth of public-sector wage-earning is only partly a real growth, and also due to the change in classification. It may be noted that the number of female employers did not change substantially over the intercensal period and even tended to decline in urban areas. By contrast the number of male employers in urban areas rose by 50 per cent over the period, though falling by 25 per cent in rural areas. Undoubtedly some of these changes were due to changes in the rural/urban boundaries, but the contrast with female experience is marked, and suggests that more specific efforts are needed to foster female entrepreneurship, a point which will be discussed later in the paper.

1/ Enterprises receiving substantial government investment may also be under pressure to actively observe government policies favouring the increase of female employment.

(e) The occupational structure of female employment

As may be seen in Table 12 below, the expansion of female employment during the intercensal period has been uneven in occupational terms. Major increases occurred in the professional and technical group and the clerical group in urban areas, and in the production group in rural areas. In addition the considerable increase in seasonally unemployed female agricultural workers should not be forgotten, although full-time employment increased only slightly. The sales, and administrative and managerial groups continued to be barely represented in female employment, and urban employment of production workers remained static. Employment of female service workers actually fell significantly during the period in both urban and rural areas, and this is thought to be due to the decline in domestic service employment. 1/

Table 12. Employment by occupational groups (thousands)

		Professional & Technical workers	Administrative & Managerial workers	Clerical workers	Sales workers	Service workers	Agricultural workers	Production workers	Others
Females									
1966	Rural	3	-	-	2	26	192	370	7
	Urban	48	-	13	2	85	8	138	8
1976	Rural	18	-	1	2	10	212	496	6
	Urban	170	1	64	6	55	9	140	12
Males									
1966	Rural	36	1	14	128	143	2 747	517	55
	Urban	114	10	172	370	255	189	1 005	185
1976	Rural	65	5	40	113	81	2 523	1 034	75
	Urban	282	41	343	474	279	224	1 627	372

Sources: 1966 Census Table 16
1976 Census Table 18

The increased employment of female professional and technical workers is predominantly due to the expansion of the female teaching force, and of medical occupations. The growth of the female teaching force may be seen in Table 13, comparing the 1966 Census data with the latest statistics from the Ministry of Education. Unfortunately the detailed occupational breakdown from the 1976 Census is not yet available.

Given the very rapid recent expansion of educational enrolments, it may be presumed that there were well over 100,000 female teachers by 1976. It may be noted also that in 1974/5 female teachers were more heavily concentrated in the lower levels of the educational system compared to male teachers.

In 1966 there were 11,243 females in medical occupations, of whom only 638 were in rural areas. Although it is certain that these numbers have increased substantially, and it is known also that there has been significant recruitment of foreign doctors, nurses, and medical technicians, no more recent figures were available for the preparation of this paper.

1/ In recent years the Iranian authorities have permitted the immigration of domestic servants from other Asian countries.

Table 13. Employment of female teachers

Type of education	1966 Urban	1966 Rural	1974/75	(1974/5 males)
Kindergarten	240	8	3 026	33
Primary	29 291	1 949	60 507	53 574
Guidance	-	-	19 569	23 040
Secondary General	4 724	57	5 818	14 023
Vocational & technical	-	-	993	4 353
Teacher-Training	-	-	308	940
Education Corps	-	-	6 269	14 671
Special Education	166	10	536	186
Higher(full-time)	242	4	948	4 864
Other teachers	1 108	495	-	-
Total	35 771	2 523	97 974	115 684

Sources: 1966-Census, Vol.CLXVIII, Table 26
1974/5-1976 Educational Statistics, Tables 1 and 7B

Note: The category "other teachers" presumably includes at least those in teacher-training and vocational and technical education, though the number in rural areas is surprising. Guidance education only began in 1971, in lieu of the first three years of secondary education, so secondary teachers in 1966 should be compared with both guidance and secondary in 1974. The Education Corps only recruited females from 1969 onwards. Unfortunately the Education Statistics make no distinction between rural and urban teachers.

The growth of female employment in clerical occupations, almost wholly an urban phenomenon, presumably reflects their increased employment as secretaries and typists, particularly in the public sector. In the private sector, even in large enterprises, it is still common to see these tasks performed by men, particularly outside Tehran.

The continued absence of significant numbers of females in the category of administrative and managerial workers indicates that it is still rare for women to reach the top-level positions in industry, commerce, or even government. Notable also is the persistence of the relative lack of females in sales occupations. This presumably reflects social opposition to women being in positions where they have extensive contact with the public, but it has one consequence which seems curious to a Western observer. In the westernized shopping areas of the main cities, and especially in Tehran, saleswomen may be found in department stores, and particularly in shops selling women's shoes and clothing. But in the bazaars, which are also centres of religious tradition, and more likely to be used by less-emancipated women, all the sellers of products bought by women are men. It appears to be acceptable for women to be in contact with men on the buying side of a commercial transaction, but not on the selling side.

Many service occupations which are customarily filled by females in other countries continue to be male preserves in Iran. Thus relatively few women yet work in hotels, and virtually none in restaurants, or in public transport. Beyond this the declining appeal of domestic service, particularly in the larger cities where usually better-paid alternative employment is increasingly available, is the most likely reason for the overall decline in female employment in service occupations. Given that social attitudes and customs continue to evolve in the direction of further female emancipation, which is currently open to some questions, then this is a sector of economic activity with great potential for the expansion of female employment.

According to the data in Table 12, employment of female production workers grew in rural areas, but remained static in urban areas. This seems puzzling on two counts. Firstly, carpet-making, which is historically by far the largest source of employment for female production workers in rural areas, is generally considered in Iran to be in a more or less rapid state of decline. Secondly, given the extension of urban areas during the intercensal period, some expansion of urban female employment in production occupations might have been expected from this cause alone, ignoring the known increases that have occurred with the expansion of industries such as electrical goods assembly and food-processing.

In the case of the rural areas, the most likely explanation is that the apparent increase in employment is more statistical than real, being a function of the growth of population rather than of any increase in economic activity. This may be explained as follows. Traditionally, rural women in most parts of Iran have made carpets in their homes as a way of supplementing the family's income from agriculture, [1] and their daughters have been trained from childhood to help in this task. But in recent years, for a number of reasons, this activity has tended to decline. Rural families have tended to increase in size as a higher proportion of children survived infancy, increasing the mother's burden of domestic duties. A growing proportion of rural girls enter primary school, and so lose the opportunity of developing supple fingers for carpet-knotting in childhood. The increased trend of rural-urban migration among men in particular has further increased the domestic responsibilities of the wives and mothers left in the villages, and in some instances the resultant increased income has obviated the economic need to produce carpets. For all of these reasons, while families may not have completely abandoned carpet production, they have frequently greatly reduced their activity in this direction, but may still consider themselves as carpet-makers. In this context it may be noted that while an Iranian study [2] found that 475,000 females worked in rural textile industries, the great majority of them in carpet-making, over 90 per cent of these were unpaid family workers. The 1976 Census showed that of rural female production workers, over 50 per cent were under 20 years of age, 90 per cent were illiterate, and over 50 per cent worked less than 36 hours a week, below the average for any other occupational group. Thus it is suggested that the apparent expansion of rural female employment in production occupations is better characterised as a growth in the numbers participating (with decreasing frequency) in a spare-time occupation without any direct income.

This may be contrasted with the doubling of employment of male rural production workers during the intercensal period. Of these only 25 per cent were under 20, only 70 per cent were illiterate, and the average working week was 51 hours, with only some 6 per cent working less than 36 hours a week. In 1966 the largest category of employment was labourers, but construction occupations were also important, followed by textile industry occupation. Thus it would appear that male rural production workers covered a wider variety of activities than females, and that they can in the great majority of cases be considered as full-time workers, with a higher proportion educated, and a better distribution over different age-groups. In short, all the evidence suggests that the expansion of this category of male employment was a genuine increase in full-time employment, in contrast to the somewhat nebulous expansion of a secondary activity among the majority of the equivalent female group.

As noted above, urban employment of female production workers barely increased during the period. This is unexpected, because in the first place the expansion of urban areas in the 1976 census should have led to the absorption of some female production workers previously classed as rural into the urban category. Beyond this, it is also known that recently created large-scale manufacturing operations in a number of fields, e. g. food-processing, footwear, electrical goods, have created new female jobs in production occupations. In 1966 nearly 90 per cent of urban female employment in this category was in textile production and tailoring. In the absence of detailed information on the 1976 occupational structure, the only reasonable assumption is that a proportion of previous jobs in textiles, perhaps mainly those in home industries, disappeared, to be replaced by more jobs in modern, large-scale establishments in both textiles and other industries. By comparison the number of males working in production occupations in urban areas increased by over 60 per cent during the decade.

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[1] In a minority of instances, if the women are sufficiently skilful and productive, this may become the family's main source of income.

[2] Iran Statistical Centre, Results of the Census of the Rural Textile Industry in 1351 (1972/3) Tehran, 1975/6 (in Farsi) pp. 8, 9.

From the foregoing analysis, limited as it is by the paucity of more recent data, it is nevertheless clear that the expansion of female employment has been largely restricted to certain occupational fields - professional and clerical occupations in urban areas, agricultural work in rural areas. It was suggested that the expansion in rural production occupations was more apparent than real, and there are important occupational fields where women's participation is declining (services), or barely exists (sales, administration and management).

(f) The educational background of employed females

Because of the increasingly rapid pace of the recent expansion of education for females, the number of educated females who had left the educational system by 1976, and so could theoretically be available for employment, was considerably smaller than the number of females still in the system. The educational profile of the female labour force was therefore less developed than the recent growth of education might lead one to expect. Moreover, since the majority of females who have left the educational system are not in employment, it is still the case that a majority of employed females are illiterate. Nevertheless, this situation has changed considerably since 1966, as can be seen in Table 14.

In the rural areas, virtually all employed females in 1966 were illiterate. By 1976 some change had occurred. The employment of illiterate females has increased, but in certain occupational fields the numbers of educated employed had proportionately increased much faster. In professional and technical occupations there was a significant expansion of workers with all levels of education (from a very low level in 1966), while in agricultural and production occupations the rate of growth of employment of those with some primary education was considerably more rapid than the rate of growth of employment among illiterates, though in numerical terms the growth of employment of illiterates was greater. But in other occupational fields there continued to be very little employment of educated females in rural areas.

A more rapid development of employment of educated females has taken place in the urban areas. In 1966 only 32 per cent of those employed had any education at all, but by 1976 this percentage had risen to 65 per cent. Among the professional and technical and the clerical occupational groups the employed females come from all levels of the educational system, while in the production and service groups they are predominantly those with at most a completed primary education. In the other occupational fields only small numbers of educated females are found, though even this is an improvement over the situation in 1966.

Apart from these general observations on the changes in the educational background of employed females, more interesting findings come from comparing the employed group with all adult females in respect of education. Table 15 shows how the stock of education in the non-student female population has grown compared with the growth of female employment over the intercensal period.

In the rural areas a straightforward relationship appears to operate, both in 1966 and 1976. Those employed with each level of education are only a small proportion of the total female population with that educational level, though the proportion increases with the level of education in 1976, to the point where for the group with at least a completed secondary education, the great majority are employed, though this group is only a very small fraction of the total. The rate of increase of employment from 1966 to 1976 has been lowest among illiterates, and increases with the level of education.

In the urban areas a more complex situation exists, and it has changed in important respects since 1966. Then the great majority of the urban employed were illiterates, and employment decreased with successive levels of education. However, the ratio between those employed and the total stock of females at each level of education was highest at the highest level and lowest at the middle level, with the illiterate group occupying an intermediate position. In other words, the group with less than a completed secondary education had the lowest ratio of employment to the total stock with this level of education, whereas the highest ratio of employment to stock was found in the group with at least a completed secondary education.

Table 14. Educational level of employed females, 10 years and over, by occupational group, 1966 & 1976 (thousands)

Educational Level	OCCUPATIONAL GROUP: Professional & Technical workers	Administrative & Managerial workers	Clerical workers	Sales workers	Service workers	Agricultural workers	Production workers	Non-student population 10 + years with each level of education
1966								
Urban								
Illiterate	2	-	1	2	78	8	121	1 967
Primary	4	-	2	1	5	-	15	717
Secondary	34	-	10	-	1	-	2	313
Higher	6	-	-	-	-	-	-	17
Rural								
Illiterate	1	-	-	2	26	189	363	4 554
Primary	-	-	-	-	-	3	6	217
Secondary	2	-	-	-	-	-	-	11
Higher	-	-	-	-	-	-	-	-
1976								
Urban								
Illiterate	2	-	1	3	41	8	102	2 575
Primary	5	-	3	1	10	1	33	851
Guidance/ Secondary	91	-	48	1	3	-	5	460
Vocational/ Technical	18	-	4	-	-	-	-	35
Higher	53	1	7	-	-	-	-	74
Rural								
Illiterate	1	-	-	2	9	197	451	5 048
Primary	2	-	-	-	1	15	44	267
Guidance/ Secondary	11	-	1	-	-	-	1	33
Vocational/ Technical	3	-	-	-	-	-	-	3
Higher	1	-	-	-	-	-	-	2

Sources: 1966 Census, Tables 6,7, and 17
1976 Census, Tables 9,10, and 19

Note: 1. 'Primary' includes all those with any period of education up to completed primary. 'Guidance/Secondary' includes all those with any education at this level, completed or not. Similar remarks apply to other educational categories listed.
2. Workers whose occupations were not classifiable have been excluded.

Table 15. Growth of education and employment in the non-student female population aged 10 and over, 1966 and 1976 (thousands)

	Employed females		All non-student females	
Education level	Urban	Rural	Urban	Rural
1966				
Illiterate	307	582	1 967	4 554
With less than completed Secondary education	54	18	957	160
With completed secondary education upwards	40	1	90	2
1976				
Illiterate	160	665	2 575	5 048
With less than completed Secondary education	98	68	1 113	288
With completed Secondary education upwards	197	13	306	17

Sources: As for Table 14 above.

By 1976 urban employment of illiterates had almost halved, the group of employed females with less than a completed secondary education had nearly doubled, and the group with at least a completed secondary education had increased nearly five-fold. The ratio between employment and stock at each level of education rose consistently with the level of education. This point is brought out in Table 16 for both rural and urban areas.

Table 16. Percentage of female population with given levels of education who were in employment in 1976

	Illiterate	Less than completed secondary education	Completed secondary education upwards
Urban	6	9	64
Rural	13	23	76

As might be expected, the likelihood of being employed increases with the level of education, but it might not be expected that the employment rates would be higher in rural than in urban areas for all educational levels, since most jobs requiring more education are in urban areas. Two factors contribute to this paradox. Firstly, although there are not many rural jobs requiring a greater amount of education, there are also not many rural females with such education, so that a higher percentage of them can find employment. Secondly, although most jobs requiring education are in urban areas, so are the overwhelming majority of educated females, so that female employment as a percentage of educational stock is lower in these areas.

It is particularly striking how few of the females with less than a completed secondary education are employed in urban areas - roughly half as many as in the group with at least a completed secondary education. The better-educated group are concentrated in the educational and medical services, and in clerical occupations. (A similar occupational concentration is found in rural areas

among the better-educated, though the numbers involved are much smaller). It is on the face of it puzzling that more of the less-educated group are not employed, and this may perhaps be linked to the lack of growth of female employment in production occupations in urban areas, referred to in the previous section.

The educational characteristics of male employment broadly parallel these of female employment in rural areas, though of course the numbers involved are far larger. In urban areas illiterate male employees are outnumbered by those with less than a completed secondary education, with the best-educated group only 14 per cent of the total, in marked contrast to the situation prevailing among urban female employees. This reflects the far more diversified occupational structure of male employment, which is represented in all occupational groups at virtually all educational levels. A perhaps only slightly exaggerated conclusion might be that in Iran employment is still essentially a masculine phenomenon, with only a few limited areas penetrated by females.

(g) The female unemployed

It was noted in section (b) that female unemployment has increased considerably in the intercensal period (see also Table 9). Table 17 gives the characteristics of the unemployed females in more detail.

Table 17. Female unemployment, by type of unemployment and educational level, 1976. (thousands)

	Urban			Rural		
	Seeking Work			Seeking Work		
Educational Level	New Entrants	Previously employed	Seasonally unemployed	New entrants	Previously employed	Seasonally unemployed
Illiterate	3	-	5	11	2	187
Less than completed Secondary	4	1	1	1	-	16
Completed Secondary Upwards	14	-	-	-	-	-

Source: 1976 Census, Table 30.

Female unemployment is mainly a rural phenomenon, and predominantly concerns seasonally unemployed agricultural workers, the great majority of whom are illiterate. Indeed, the number of seasonally unemployed female agricultural workers, 199,000, almost equals the number fully employed [1/], which was recorded in Table 12 as 212,000. This contrasts with the situation of male agricultural workers, for whom the Census records 2,523,000 employed as against 402,000 seasonally unemployed. Again, women appear to occupy a somewhat more marginal position than men in this field of employment.

Among the urban female unemployed, the largest group are the new entrants to the labour force with at least a completed secondary education. Since, as was shown in the previous section, this is the educated group with the highest employment rate among the urban female population, it may be asked whether this is indicative of a normal delay in finding a first job, or whether it is a sign of the beginnings of educated unemployment. Iranian sources have previously drawn attention to a difficulty in finding employment for those secondary-school-leavers who have taken the literary option in the school-leaving examination [2/].

[1/] 1976 Census, Table 31

[2/] See, e.g. an article in the Kayhan International newspaper of 11 November 1974.

Also notable is the lack of female urban job-seekers with less than a completed secondary education - further confirmation that most of this group do not seek to enter the labour force.

(h) Conclusions

Female access to employment in Iran has advanced less far than female access to education, though there has been considerable progress during the intercensal period. This is scarcely surprising if it is accepted that entry to many types of employment increasingly presupposes some prior level of education, the level demanded itself tending to increase over time. Thus the earlier limited access of females to education must itself be considered as one of the factors limiting current female access to many types of employment - the constraint of lack of qualified entrants.

The access of females to employment has advanced farthest amongst the best-educated strata of the population, though only within limited occupational groups, while the range of educational alternatives chosen by females has widened considerably. Given the recent manifestation of opposition to female emancipation in Iran, the question may be raised whether the range of occupational choices open to better-educated women can be further extended to reflect their increasingly diverse qualifications, without great difficulty, particularly in the area of managerial and administrative positions.

Otherwise the greatest amount of female employment is in rural areas, in agricultural and production occupations, but closer investigation suggests that a substantial proportion of this is either seasonal or underemployment, and the majority of those involved are young and illiterate.

Urban employment of the illiterate female has declined, though not the number of urban illiterates. Similarly the labour-force participation of the less-educated group has grown relatively slowly, suggesting that it is only the best-educated group of females that has effectively participated in the growth of urban employment and the industrial development boom that has recently occurred in Iran. There remain strong social pressures against the employment of less-well-educated women, even in the urban areas.

IV. WOMEN'S PROGRESS IN EDUCATION AND EMPLOYMENT IN IRAN

The purpose of this section of the paper is to draw conclusions from, and sum up the findings of the proceeding sections. In this sense, it is in part a recapitulation, but is also intended as a refinement of some of the points made previously.

Two different approaches are possible. If we compare the situation of women in 1976 with that in 1966, it is possible to bring out the extent of female progress in access to education and employment. Conversely, comparison of the position of women in 1976 with that of men in 1976 brings out the distance that women still have to go to approach parity, particularly with regard to employment. While both of these approaches are enlightening, the latter is the more forward-looking But beyond this a third dimension which must not be forgotten is that of the disparities between different groups of women. This is also considered below.

(a) Progress from 1966 to 1976

Comparative data for 1966 and 1976 relating to female literacy, employment, unemployment, education, and dependency status are given in Table F of the Appendix.

In some respects changes have been greater in the rural areas than in the urban areas. Rural literacy rates at least tripled for all age-groups under 35 years old, and at least doubled in all the older age-groups. Conversely in the urban areas literacy rates, although they increased for all age-groups, never managed to double at any level. The fact that the urban population expanded faster than the rural population should not be allowed to affect the above observations very much, because at least part of the urban increase was due to the arrival of literate migrants from rural areas, whereas no very significant reverse flow is likely to have occurred. Nevertheless, in the urban areas universal literacy is in sight among school-age girls (88 per cent in the 10-14 age group in 1976), while in the rural areas only just over a third of this age-group was literate in 1976.

The growth of the student population was also more rapid in the rural areas, at least in the age-groups 10-14 and 15-19. The much greater growth of the student population aged 20-29 in urban areas is partly a reflection of the relative lack of institutions of secondary and higher education in rural areas. In addition, institutions of vocational and technical education are also heavily concentrated in urban areas.

Increases in female educational enrolments are reflected by declines in employment rates for the 10-14 age-group in both rural and urban areas, and also for the 15-19 age-group in urban areas. Conversely, employment rates rose for the rural 15-19 age-group, and for the age-groups between 20 and 34 in both rural and urban areas. For the older age-groups in both rural and urban areas rates of employment declined though the increase in size of the age-groups over the decade meant that the numbers employed did not in most instances decline. The process of decline in employment rates proceeded further in urban areas and among the older age-groups. This raises the question whether in a number of instances older women with fewer formal qualifications were being forced out of the labour force by better-educated younger women, or for that matter by better-educated women of their own age seeking to return to the labour force after raising a family. Unfortunately the census has no cross-classification of the employed population by age and education which would facilitate an attempt to answer these questions.

There was a striking growth in the rates of female unemployment during the 1966-76 decade, particularly in rural areas, which is accentuated when the increased size of the age-groups is also considered. Although the number of rural females employed in agricultural occupations increased by only some 10 per cent over the period, the number of females seasonally unemployed in agriculture increased from 61,000 in 1966 to 199,000 in 1976 [1/]. From the census data it is not possible to tell whether these figures represent a real increase in seasonal female activity in agriculture, or simply a more effective coverage of this aspect in the 1976 census. However, the fact that seasonal unemployment of male agricultural workers only increased from 305,000 to 402,000 during the decade tends to suggest that the growth of female participation was a real rather than a statistical phenomenon. If so this is one of the most important changes in female access to employment, and the phenomenon deserves further investigation. From the census tables the only other information that can be gleaned is that the seasonally unemployed parallel the rural employed females in terms of age-structure and educational background. But as to the reasons behind this increase in seasonal economic activity, it can only be conjectured that it is related to the increase of rural-urban migration by former male agricultural workers, leaving their female relatives remaining in the rural areas to take on at least part of the burden of seasonal agricultural work.

A less important growth of female unemployment also occurred in the urban areas, particularly in the age-groups from 20 to 29, and this is believed to be indicative of the beginnings of the phenomenon of educated unemployment.

By far the biggest component of the female population of employable age, in both rural and urban areas, is classified as home-makers. The only qualification to this observation is that in the youngest age-groups, with the growth of school attendance, more girls are students in the urban areas. But from the age of 25 upwards in both rural and urban areas, upwards of 80 per cent of females are classified as home-makers. These percentages have even tended to increase slightly since 1966 among the age-groups aged over 40 in urban areas and over 50 in rural areas. As was noted in the previous section, many of the girls receiving education in the urban areas appear never to enter the labour force. To a large extent this can be explained by their early entry into marriage and child-bearing, but it is also an indication that while education for girls is widely accepted, at least in urban areas, employment still remains a rarer step in the female life-pattern. Many fathers who accept the idea of their daughter's education, at least for some years, still do not favour their subsequently taking up a job before marriage. Nor for that matter are many husbands in favour of their wives working after marriage. However, casual observation suggests that in the big cities at least this latter prejudice may be crumbling under the pressure of a rising cost of living, necessitating more than one wage to sustain the family living-standard.

[1/] See 1966 Census, Table 30, 1976 Census, Table 32.

A great deal still needs to be done to encourage females to seek employment, and to extend the range of occupations open to them. The attitudes of women, of their parents and hubands, and of employers and male employees all need altering in favour of greater female employment [1/]. Examples can be found of the successful employment of females in many fields hitherto the exclusive preserve of men, but these cases are seldom well-known, and so opposition to such employment remains widespread, e. g. on grounds of women's alleged incapacity, or for social reasons.

(iii) One of the arguments often advanced in favour of increased female employment in Iran is that it would free men currently working in positions which women could readily fill, and permit them to be deployed in other directions to obviate existing labour shortages. How far this argument is realistic in Iran is open to question. The transfer to other occupations implies a need for retraining, and the capacity to organise this must be found, either by government or by potential employers. A more difficult problem in Iranian circumstances might derive from the necessity for such displaced male workers to move to other areas of the country to take up new jobs. Given the extreme shortage of housing in many urban centres, and the inability so far of the government to make any major inroads into this problem, the practicability of such labour movements may be limited.

Furthermore, it may be questioned how far the alleged labour shortages are real, and how far they are a reflection of employers' unwillingness to provide sufficiently attractive employment conditions. Direct inquiries to employers [2/] often revealed that their problem was rather one of high labour turnover. Because of the type of development of trade unions permitted in Iran, industrial relations practices were often relatively undeveloped, so that workers who were unable to improve their conditions of employment through bargaining procedures, had only the alternative of seeking better conditions through a change of employment. Combined with the rapidly rising cost of living, this situation was a strong inducement to a high rate of labour turnover. Conversely, a few employers who gave serious attention to their employees' welfare appeared not to suffer from labour turnover problems, and to have no difficulty in finding labour when they needed it.

Finally, before the replacement of men by women is actively espoused, it should also be noted that the 1976 census reveals that male unemployment is significantly above that of females, in both urban and rural areas. Apart from seasonally unemployed agricultural workers, the second largest category of unemployed males were those seeking work and previously unemployed, presumably mostly new entrants to the labour force from the educational system. Over 100,000 of the 161,000 urban male unemployed were in the under-25 age group, and of the 111,000 who were previously unemployed and seeking work, almost 50,000 had at least a completed secondary education. This suggests the beginnings of an educated unemployment problem, particularly when it is borne in mind that a similar situation prevails, though on a smaller scale, among the equivalent group of female unemployed. It also provokes the suggestion that female urban employment, particularly of the better-educated, has made it more difficult for some males to find jobs, e. g. in clerical occupations. Conversely in rural areas, although seasonal unemployment of males in agriculture showed some increase from 1966 to 1976, it was far less than in the case of females, which does not suggest that females were displacing males in this activity. Rather it is the case that since more than 90 per cent of agricultural employment is male, most of the unemployment can be expected to be among males too.

Although the number of males unemployed is higher than that of females in both urban and rural areas, unemployment rates are lower for males, because of their much larger participation in the labour force. This is particularly the case in the rural areas. Only among the more-educated urban school-leavers is there any suggestion that females may be supplanting males in employment, so that in theory there could be scope elsewhere for liberalising female access to employment to permit deployment of males to other occupations, subject to the considerations mentioned above.

1/ See C. H. Lindsey, A New Approach to Women's Employment in Iran, Tehran, Plan & Budget Organization, 1977, for more discussion of these points.

2/ By the author when working on employment problems in Iran during the period 1974-77.

(b) Male-female disparities in education and employment, 1976

Data on male activities are shown in Table G of the Appendix, and these may be compared with the data in Table F for female activities. From such a comparison several points immediately stand out:

(i) Male educational enrolment percentages are much higher in rural areas, and slightly higher in urban areas.
(ii) Except in the school-age groups, employment is the dominant activity for males as home-making is the dominant activity for females.
(iii) Unemployment is greater for males, particularly in the rural areas.

These points are discussed in more detail below :

(i) The educational discrepancy between males and females is most striking in rural primary schools. Among urban male and female primary pupils, and rural male pupils, a similar profile of educational enrolments emerges. Enrolments are highest in the first grade, and then diminish steadily in subsequent grades until they increase somewhat in the fifth and last grade due to the effect of repeaters trying again to pass the primary school-leaving examination. (The decline in successive grades is due in part to the effect of drop-outs and in part to the growth of the school-age population and expansion of schooling). But for rural female primary pupils a somewhat different profile exists. Here the numbers enrolled are typically much smaller than for any of the other categories mentioned above, and moreover there is a steeper decline from the first to the second grade, presumably because a greater number drop out after one year of education. Also the phenomenon of repetition in the fifth grade appears to be less common, implying that if a rural girl fails to pass the primary school-leaving examination at the first attempt, she is less likely to stay at school for a second attempt. Moreover because of the more limited development of post-primary education facilities in rural areas, particularly for girls, there is less likelihood that the successful rural female primary school-leaver will be able tc continue her education, unless she can move to an urban area. Given the restrictive family attitudes towards young females, it seems prima facie unlikely that such rural-urban movements will be permitted very often.

Current (1976) male/female disparities in access to education are much greater for rural females than for urban females, but even for the latter group the disparities increase with progress into the upper levels of the education system. They are particularly noticeable in the area of vocational and technical education, where except in commercial and secretarial studies girls are barely represented. In teacher/training for the sub-secondary levels of the educational system the former female pre-eminence is tending to decline with the more rapid increase of male studends.

Considerable progress has been made in reducing male/female disparities in educational access since 1966, but it is only in urban primary education that parity of enrolments is close to being achieved. In rural areas, and in the post-primary institutions, there is still far to go.

(ii) Sex-related discrepancies in access to employment are even more marked than in the case of education, though the rural/urban dichotomy does not have the same effect.

With the exception of the 25-35 age-group, the percentage of women in employment is slightly higher in the rural areas than in the urban areas. But as was shown in the section on employment, a significant proportion of rural female employment is in reality under-employment, which is not the situation to nearly the same extent with rural employed males. Thus there would appear to be a substantial measure of truth in the conclusion that rural females have only limited access to full-time wage-earning employment opportunities.

Among urban females a different situation prevails. Of those that have at least a completed secondary education, some two-thirds are employed [1/], but only 9 per cent of the less-educated and 6 per cent of illiterates have jobs. Moreover the range of employment of the better-educated females is very limited, being mainly in the education and health services, and in clerical and secretarial work. By contrast the great majority of urban males with all levels of education are in employment throughout the full range of occupations.

1/ See Table 16.

(c) Disparities among females, 1976

These have already been made evident in previous sections, and may be briefly summarised here.

Concerning access to education the principal disparity is the rural/urban one, and among urban females the likelihood of their staying longer in the educational system is mainly associated with the family income level, though this latter point is not derived from the Census.

With regard to access to employment, educational background is the most important factor determining access to the better-paid jobs. Since the expansion of education is a relatively recent phenomenon, it is also the case that most of the women in better-paid occupations are relatively young, say below 35. Also they are mostly urban women, since occupational choice in rural areas is very limited, and includes very few of the better-paid positions. Another factor which undoubtedly has an important influence on female access to employment is marriage and parenthood, but unfortunately the Census does not provide the information to assess its impact. Nevertheless it is widely stated in Iran that husbands usually object to their wives continuing to work, and that the limited development of child-care facilities and kindergartens makes it difficult for mothers of young children to take up employment. Access to unskilled, part-time or seasonal employment is greater among rural women, because more of such job opportunities are located in rural areas, in agriculture or in artisanal activities carried on at home.

(d) Conclusions

Access of females to education in Iran is far more extensive than their access to employment, and this is particularly the case in urban areas. The education of females has become widely accepted, but their employment is still hemmed around with many barriers and restrictions. Much of the female employment in rural areas is home-based and urban female employment, particularly at levels of greater skill, tends to be concentrated in a few occupational areas.

In education the principal task is to extend the system in rural areas, and to provide conditions, such as more female teachers, which facilitate enrolments of female pupils. Also ways must be found to increase female access to vocational and technical education, to provide the background for access to a wider range of occupations.

In employment the barriers, largely social and customary, to female access to many types of occupations must be lowered. Also ways must be found to increase the income potential of rural work in agriculture and handicrafts, and to extend the range of rural employment opportunities for women.

Whether the recent widespread manifestations against certain directions of Iran's development, including the emancipation of women, will inhibit the further progress of women in education and employment, remains uncertain at the moment. Since opposition to education has not been reported, it may be hoped that progress in reducing female disparities will continue, albeit more slowly.

V. POLICY IMPLICATIONS AND SUGGESTIONS FOR FURTHER RESEARCH AND FOREIGN ASSISTANCE

(a) Education

(i) Policies : Access of rural females to education needs to be further improved. The best means may be through increasing the female teaching staff in rural schools, and this may most easily be done by recruiting local girls who have some education, and giving them in-service training as necessary. Ultimately women could become predominant in primary teaching.

Efforts are necessary to increase the proportion of girls taking science and maths options in secondary school, and more particularly to open all types of technical and vocational education to both males and females.

Given Iran's existing social structure, single-sex post-primary education is the norm, but it may be questioned whether this is desirable, given that higher education is mostly mixed, and what steps could be taken to extend mixed education, e. g. greater use of female teachers in secondary and vocational education.

Much more effort is needed to extend post-primary education, especially vocational and technical, to rural areas.

Investigation is needed into the possibilities, of developing special curricula for rural educational institutions, especially at the primary level, to encourage pupils' interests and proficiency in agriculture and handicrafts. Development of supporting institutions (e. g. credit facilities, production and marketing co-operatives) is needed to enable future rural workers to support themselves better by these activities.

(ii) Research: The school enrolment and attendance patterns of rural girls need investigating, to see to what extent they drop out and for what reasons.

The extent of the posting of Literacy Corps female teachers in rural areas also needs investigating. These are normally well-educated girls, but it is believed that they mostly work in urban areas. What steps can be taken to alter this pattern?

(b) Employment

(i) Policies : More social provision is needed for working mothers, e. g. government inducements to employers to establish crêches and kindergartens for the children of their employees. One step might be for government to pay the staffing costs of such facilities. Where government is developing industrial estates, which normally bring together a number of smaller enterprises, child-care facilities could become part of the government-operated infrastructure, available to employees of all the firms on the estate in the first instance, and secondly to other local residents.

The Iranian labour law is in need of review to ensure that it meets international standards in such areas as maternity provisions and equality of working conditions for males and females, to the maximum extent possible. More importantly, the Ministry of Labour needs strengthening to ensure that it can enforce the Labour laws at the local level. These steps should encourage women to seek employment, though at the same time they may encourage less scrupulous employers in their avoidance of employing females.

Ways must be found to widen the range of employment open to women. Their increased access to all types of education should eventually have an impact in this direction, but in the meantime more needs to be done to publicise the extent of women's capabilities in employment. The possibility of aiding the establishment of enterprises run by females and with an all-female staff needs further investigation and encouragement, ultimately to foster their competition with male-run enterprises. Most types of servicing and maintenance activities are in scarce supply in Iran, and this might be an area of greater female employment.

The infrastructure must be established to increase the availability of agricultural and handicraft training for rural women, together with other supportive measures to increase their income-earning capacity in these activities.

Employers must be encouraged to provide more opportunities for part-time employment and work-sharing (e. g. two women alternating in a job), particularly for mothers of school-age children. Government could take the lead in fostering such working arrangements in the public sector and parastatal enterprises. Adjustments in social security arrangements may also be needed to encourage the adherence of private-sector employers.

(ii) Research : Employment of urban females in production occupations has not noticeably increased since 1966, and it would be useful to know the reasons why, and whether the apparently static situation conceals compensating changes in this area of employment.

More needs to be known about the reasons why so few of the less-educated urban girls ever enter the labour force.

Similarly, too little is known about the increases in employment in agricultural and production occupations among rural females. How many of these females can be considered as fully employed, and what levels of income do they derive from their activities?

Has land reform been a factor in increasing rural female employment, as small landholders (male) migrated from the land to work in cities, leaving their female relatives to run the holding?

(c) Possibilities of Foreign Assistance

As an important member of OPEC, Iran cannot be considered a poor country, so can hardly qualify for capital assistance for its further development. Indeed it provides a limited amount of assistance to other developing countries. Nevertheless Iran still suffers from serious inequalities and extensive poverty among some groups of its population. Also, because Iran's development and enrichment have until recently been based on the exploitation of an exhaustible natural resource for export, rather than on the integrated development of its own agricultural and industrial economy, there has not been a commensurate development of training and research capacities.

It is in these areas, assistance with training and research, that Iran might well make further good use of foreign assistance, providing language barriers can be overcome.

Specifically, countries where female emancipation is more advanced might be able to help Iran in the setting-up of training facilities and activities for women and girls, e. g. in service and industrial occupations. Foreign female researchers might also work to mutual benefit with their Iranian counterparts, particularly in rural areas, in some of the directions of research suggested above. Finally, Iranian policy-makers could benefit from visits abroad to more emancipated countries to see how the special problems of women workers are tackled and legislated for.

Appendix Table A. The growth of literacy among the population aged 10 and over (thousands)

1966 age groups	1966								1976								1976 age groups
	Males				Females				Males				Females				
	Rural		Urban		Rural		Urban		Rural		Urban		Rural		Urban		
	I	L	I	L	I	L	I	L	I	L	I	L	I	L	I	L	
									266	886	50	1 053	670	394	115	854	10-14
									349	442	114	908	708	178	214	676	15-19
10-14	434	480	88	572	709	96	173	422	299	254	154	637	636	73	294	438	20-24
15-19	353	201	96	390	568	32	186	263	286	150	130	430	517	28	270	269	25-29
20-24	267	107	121	271	500	12	208	151	278	97	133	315	426	14	246	169	30-34
25-29	355	93	135	203	510	7	220	95	311	84	156	256	413	8	254	114	35-39
30-34	435	74	154	172	492	4	228	61	395	71	193	215	415	4	265	77	40-44
35-39	395	59	137	146	387	3	195	57	350	55	148	162	337	3	226	60	45-49
40-44	387	55	139	130	358	2	172	39	349	49	147	145	323	2	215	46	50-54
45-49	242	33	96	69	213	1	117	23	184	23	98	81	156	1	122	21	55-59
50-54	198	19	85	55	212	1	122	14	152	13	82	47	149	1	110	13	60-64
55-59	123	11	48	31	118	-	72	7	330	24	179	75	291	1	237	17	65 & +
60-64	191	15	65	39	197	1	111	6									
65 & +	300	22	123	49	283	-	147	7									
Totals	3 680	1 169	1 307	2 147	4 547	159	1 951	1 145	3 550	2 148	1 584	4 324	5 041	707	2 568	2 754	

Sources : 1966 : 1966 Census, Table 6.
1976 : 1976 Census, Table 9.

Appendix Table B. Educational attainments of the non-student female population aged 10 and over

1966	Rural								Urban							
Age Groups	Primary			Secondary			Tech. & Vocat.	Higher	Primary			Secondary			Tech. & Vocat.	Higher
	1-3 yrs	4-5 yrs	6 yrs	1-3 yrs	4-5 yrs	6 yrs			1-3 yrs	4-5 yrs	6 yrs	1-3 yrs	4-5 yrs	6 yrs		
10-14 yrs	54 652	31 179	7 310	1 264	-	-	-	-	146 513	168 985	67 671	26 878	2	-	-	-
15-19 yrs	5 561	10 017	11 257	2 217	524	212	-	12	13 711	35 559	84 885	84 218	20 842	10 360	-	957
20-24 yrs	1 590	3 283	4 476	1 417	529	1 076	-	56	9 383	17 706	50 419	24 850	10 698	28 845	-	6 265
25-29 yrs	882	1 830	2 071	566	212	416	-	57	7 353	13 255	32 713	14 166	2 957	14 493	-	4 297
30-34 yrs	551	989	946	248	92	118	-	34	6 155	10 189	23 096	9 577	1 985	6 972	-	2 414
35-39 yrs	389	642	659	148	29	45	-	23	4 557	8 790	21 065	7 907	1 298	4 611	-	1 399
40-44 yrs	188	241	369	101	79	28	-	5	2 545	4 869	12 921	5 764	1 022	2 412	-	746
45 yrs & over	185	193	271	116	242	41	-	8	2 579	4 176	11 036	5 058	1 263	3 384	-	1 084
1976	Rural								Urban							
10-14 yrs	26 900	31 700	4 060	60	-	-	-	-	11 246	26 538	9 923	840	-	-	-	-
15-19 yrs	22 585	52 309	23 262	4 074	926	1 279	903	-	16 252	59 363	84 774	36 699	7 102	24 060	4 085	148
20-24 yrs	7 945	17 463	18 361	4 537	1 404	6 995	1 466	720	13 972	39 499	108 289	51 306	15 103	75 394	10 978	18 063
25-29 yrs	3 565	6 222	6 763	1 564	442	2 247	466	803	10 162	29 087	77 255	31 131	8 356	47 502	7 225	24 849
30-34 yrs	1 640	3 221	2 900	781	140	821	220	407	8 320	19 549	50 972	22 906	5 221	24 593	4 945	14 195
35-39 yrs	720	1 540	1 640	400	100	280	80	160	7 704	15 507	34 709	13 445	3 744	13 311	2 481	7 185
40-44 yrs	480	902	620	182	20	180	41	60	5 721	10 864	23 687	9 143	1 941	5 743	1 940	4 144
45 yrs & over	1 121	940	1 202	240	60	180	81	101	10 438	18 509	49 359	17 052	6 211	7 468	3 262	5 191

Notes : 1. 1976 figures below 200 are subject to a significant margin of error.

2. Technical and vocational education was not shown separately in the 1966 Census.

Sources : 1966, Census, Table 7. 1976, Census, Table 10.

Appendix Table C. Growth of educational enrolments (alternate years)

Type of Education	Males						Females					
	1966/67	1968/69	1970/71	1972/73	1974/75	1976/77	1966/67	1968/69	1970/71	1972/73	1974/75	1976/77
Primary												
(a) Urban	804 733	910 926	1 001 820	983 170	1 072 461	1 311 31[illegible]	630 689	738 565	830 096	817 977	899 904	1 121 181
(b) Rural	748 813	849 507	873 126	842 237	1 100 613	1 563 2[illegible]	193 847	254 134	298 016	319 212	448 446	783 250
Guidance												
(a) Urban	-	-	-	280 537	553 724	664 052	-	-	-	189 397	361 300	463 379
(b) Rural	-	-	-	80 547	185 986	264 698	-	-	-	20 984	50 446	72 793
Secondary												
(a) Urban	343 192	456 284	572 655	534 470	375 756	503 254	179 040	243 480	316 724	305 277	233 125	333 612
(b) Rural	51 233	71 275	105 508	87 622	31 556	79 521	6 251	10 468	18 033	15 154	6 727	18 323
Vocational & Technical	13 271	15 358	24 318	53 998	117 118	112 004	2 685	3 701	6 261	11 725	29 411	48 320
Teacher Training	304	414	5 228	11 148	17 434	Not known	5 388	5 645	8 060	14 910	20 363	Not known
Higher	27 901	43 124	56 738	73 611	96 720	106 909	8 841	15 070	19 138	24 766	38 634	49 326
Education Corps												
(a) Primary	209 448	245 769	386 354	466 189	444 455	Not known	43 190	47 201	117 820	129 787	164 673	Not known
(b) Adult	61 732	91 554	74 437	85 924	66 093		4 152	8 137	24 752	27 130	24 735	

Notes : 1. The duration of primary education was reduced from six to five years in 1971, which accounts for the apparent decline in enrolments in 1972/73.

2. Vocational and technical education, teacher-training, and higher education are all very predominantly urban-located. The Education Corps activities are mainly in rural areas. It is believed that the 1976/77 rural primary enrolments include the Education Corps primary schools.

3. Guidance education progressively replaced the first 3 years of secondary education from 1971/72 onwards, accounting for the apparent decline in secondary enrolments, especially in rural areas, where few secondary schools went beyond 3 years.

Source : 1976 : 1976 Census, Table 14. Earlier years: Iran, Ministry of Education. Educational Statistics (Annual)

Appendix Table D. Population 10 years of age and over, by sex, age, economic status and rural/urban breakdown, 1966 (thousands)

1966	Males								Females							
	Urban				Rural				Urban				Rural			
	Economically Active		Economically Inactive		Economically Active		Economically Inactive		Economically Active		Economically Inactive		Economically Active		Economically Inactive	
Age Group	Employed	Unemployed	Student	Homemaker	Employed	Unemployed	Student	Homemaker	Employed	Unemployed	Student	Homemaker	Employed	Unemployed	Student	Homemaker
10 - 14 years	96	18	532	-	367	89	407	-	51	2	382	160	127	20	76	580
15 - 19 years	206	32	241	-	415	67	70	-	41	3	124	285	107	13	6	479
20 - 24 years	316	31	48	-	330	42	5	-	41	3	16	305	73	7	-	436
25 - 29 years	304	14	9	-	409	46	1	-	33	1	2	285	66	7	-	447
30 - 34 years	314	9	3	-	466	51	-	-	29	-	1	270	60	7	-	430
35 - 39 years	276	8	1	-	415	48	-	-	25	-	-	231	47	6	-	337
40 - 44 years	261	8	-	-	403	45	-	-	24	-	-	190	42	5	-	310
45 - 49 years	176	6	-	-	249	27	-	-	15	-	-	126	24	3	-	182
50 - 54 years	121	5	-	-	187	22	-	-	16	-	-	124	20	2	-	169
55 - 59 years	64	3	-	-	111	14	-	-	7	-	-	65	9	1	-	88
60 - 64 years	85	4	-	-	146	17	-	-	11	-	-	75	12	1	-	108
65 years and over	77	4	-	-	141	17	-	-	9	-	-	63	9	1	-	86

Note: Categories of the economically inactive which have been excluded from this table are those "unable to work", who only become significant above the age of 60, and "others".
Source: 1966 Census, Table 12.

Appendix Table E. Population 10 years of age and over, by sex, age, economic status and rural/urban breakdown, 1976 (thousands)

1976	Males								Females							
	Urban				Rural				Urban				Rural			
	Economically Active		Economically Inactive		Economically Active		Economically Inactive		Economically Active		Economically Inactive		Economically Active		Economically Inactive	
Age Group	Employed	Un-employed	Student	Home-maker	Employed	Un-employed	Student	Home-maker	Employed	Un-employed	Student	Home-maker	Employed	Un-employed	Student	Home-maker
10 - 14 years	65	10	1 009	-	250	57	789	-	33	2	694	125	155	27	316	520
15 - 19 years	328	43	617	-	499	76	189	-	60	9	403	405	171	38	54	608
20 - 24 years	579	49	131	-	470	56	17	-	107	9	77	530	114	28	7	555
25 - 29 years	509	14	23	-	395	40	2	-	85	2	15	436	70	21	2	450
30 - 34 years	433	6	4	-	342	35	-	-	51	1	5	358	50	17	1	370
35 - 39 years	404	4	1	-	357	40	-	-	34	-	3	331	46	19	1	353
40 - 44 years	398	5	1	-	419	51	-	-	25	-	1	313	42	19	-	353
45 - 49 years	313	5	-	-	357	47	-	-	19	-	1	260	33	17	-	282
50 - 54 years	275	6	-	-	344	47	-	-	17	-	-	231	29	13	-	266
55 - 59 years	142	4	-	-	171	25	-	-	7	-	-	127	11	6	-	124
60 - 64 years	85	3	-	-	126	18	-	-	6	-	-	99	8	3	-	108
65 years and over	108	8	-	-	201	35	-	-	7	-	-	186	11	4	-	176

Note: 'Income recipients' and 'others' have been exeluded from the economically inactive.

Source: 1976 Census, Table 16.

Appendix Table F. Distribution of the female population by activity, by age, and literacy rate, 1966/76 (Percentages)

Rural								Urban							
Age Group	Literacy rate	Population (thousands)	Employed	Unemployed	Students	Homemakers	Others	Age group	Literacy rate	Population (thousands)	Employed	Unemployed	Students	Homemakers	Others
1966															
10-14	11.7	820	15.6	2.6	9.3	70.9	1.6	10-14	70.0	604	8.4	0.5	63.2	26.5	1.4
15-19	5.4	611	17.7	2.1	1.0	78.4	0.8	15-19	57.7	458	8.9	0.9	27.3	62.2	0.7
20-24	2.7	521	14.0	1.5	-	83.7	0.8	20-24	41.2	368	11.1	0.8	4.3	82.9	0.9
25-29	1.4	524	12.6	1.3	-	85.5	0.6	25-29	29.5	324	10.5	0.3	0.6	88.3	0.3
30-34	0.8	502	12.2	1.4	-	85.9	0.5	30-34	22.1	302	9.6	-	0.3	89.4	0.7
35-39	0.8	398	12.2	1.8	-	85.5	0.5	35-39	22.0	260	10.0	-	-	89.2	0.8
40-44	0.6	365	11.8	1.6	-	84.9	1.7	40-44	17.9	219	10.9	-	-	87.2	1.9
45-49	0.5	217	11.1	1.4	-	84.3	3.2	45-49	15.8	147	10.9	-	-	86.4	2.7
50-54	0.4	216	9.7	0.9	-	78.7	10.7	50-54	9.4	154	11.0	-	-	80.5	8.5
55-59	0.3	120	7.5	0.8	-	74.2	17.5	55-59	9.1	84	8.3	-	-	78.6	13.1
1976															
10-14	36.9	1 069	14.6	2.6	29.6	48.6	4.6	10-14	88.0	971	3.5	0.2	81.8	13.0	1.5
15-19	19.9	893	19.3	4.2	6.2	68.1	2.2	15-19	75.6	894	6.7	1.0	45.2	45.4	1.7
20-24	10.3	716	15.9	4.1	1.0	77.6	1.4	20-24	59.4	737	14.5	1.4	10.4	71.9	1.8
25-29	5.2	550	12.9	4.0	0.4	81.8	0.9	25-29	49.4	546	15.6	0.6	2.9	80.0	0.9
30-34	3.2	444	11.5	3.8	0.2	83.3	1.2	30-34	40.2	421	12.1	0.2	1.2	85.3	1.2
35-39	2.0	425	11.1	4.7	0.2	83.1	0.9	35-39	30.6	375	9.3	0.3	0.8	88.3	1.3
40-44	1.2	423	10.2	4.5	0.2	83.5	1.8	40-44	22.0	349	7.5	0.3	0.6	89.7	1.9
45-49	1.1	343	9.6	5.3	0.3	82.2	2.6	45-49	20.8	292	6.8	0.3	0.7	89.4	2.8
50-54	0.8	329	8.8	4.0	-	81.2	6.0	50-54	17.5	269	6.3	0.4	-	86.6	6.7
55-59	0.7	159	6.9	3.8	-	78.6	10.7	55-59	14.7	150	4.7	-	-	84.7	10.6

Notes: 1. 'Others' include income recipients, invalids, and anybody else not fitting into the above categories.
2. The percentages shown for literacy rates are not related to the other percentages, which together add up to 100 for each age group.

Sources: 1966 Census, Tables 6 and 12. 1976 Census, Tables 9 and 16.

Appendix Table G. Distribution of the male population by activity, by age, and literacy rate, 1976 (Percentages)

Rural							Urban						
Age Group	Literacy rate	Population (thousands)	Employed	Unemployed	Students	Others	Age group	Literacy rate	Population (thousands)	Employed	Unemployed	Students	Others
10-14	76.7	1 156	21.7	5.1	68.3	4.9	10-14	95.4	1 105	6.0	1.0	91.3	1.7
15-19	55.4	798	62.7	9.6	23.7	4.0	15-19	88.7	1 024	32.1	4.3	60.4	3.2
20-24	45.4	560	83.9	10.0	3.0	3.1	20-24	81.1	796	72.7	6.2	16.5	4.6
25-29	33.8	444	89.2	9.0	0.5	1.3	25-29	76.2	565	90.3	2.7	4.1	2.9
30-34	25.4	383	89.3	9.1	-	1.6	30-34	69.6	454	95.6	1.3	1.1	2.0
35-39	20.9	404	88.6	10.1	-	1.3	35-39	61.2	419	96.7	1.0	0.5	1.8
40-44	15.0	479	87.7	10.6	-	1.7	40-44	51.8	416	95.9	1.2	0.2	2.7
45-49	13.4	415	86.3	11.3	-	2.4	45-49	48.1	338	92.6	1.5	-	5.9
50-54	12.1	409	84.4	11.5	-	4.1	50-54	45.4	320	86.3	1.9	-	11.8
55-59	11.1	214	85.0	12.1	-	2.9	55-59	44.1	184	77.7	2.2	-	20.1

Notes: 1. The Census excludes the category 'Home-maker' for men.
2. 'Others' include income recipients, invalids, and anybody else not fitting into the above categories.
3. The percentages shown for literacy rates are not related to the other percentages, which together add up to 100 for each group.

Sources: 1976 Census, Tables 9 and 16.

This volume contains some twenty papers presented at a seminar organized by the International Institute for Educational Planning on the subject of inequalities in education and employment. (A report of the seminar, with a synthesis of the discussions that took place and five further papers, has been published under the title *Planning education for reducing inequalities: an IIEP seminar).*

Faced with a situation in which, despite the exceptionally rapid growth of educational systems over the past two decades, inequalities in educational access and achievement persist—and sometimes, even, are increasing—many Third World countries are now making "equality of opportunity" a major target in their educational development plans. However, at a time when educational expenditure in many countries has reached a ceiling, reliance can no longer be placed on the continuing expansion of the educational system for the gradual disappearance of inequalities. Profound changes are necessary in the orders of priority; new strategies of organisation and planning must be found, which will contribute more efficiently than in the past to the reduction of inequalities.

This seminar reflected the views of policy-makers and planners from various developing countries, research workers in the field of educational inequalities, and representatives of bilateral and multilateral aid agencies. It thus facilitated a fruitful dialogue between experts with different points of view but with a common concern—the aim of genuine democratisation.